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HIGHER CONTROL  
IN  
MANAGEMENT



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*Also by T. G. ROSE*

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report
- Charts

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- Interim Balance  
Sheet
- Asset Variation  
statement
- Financial Forecast
- Secretary's or Cashier's  
report
- Charts



# HIGHER CONTROL IN MANAGEMENT

A METHOD OF PRESENTING THE FACTS AND  
FIGURES OF INDUSTRIAL AND COMMERCIAL  
UNDERTAKINGS SO THAT THEY CAN BE USED  
FOR THE PURPOSE OF MANAGEMENT

BY

T. G. ROSE

M I MECH E, F I I A., M I P E

AUTHOR OF "BUSINESS CHARTS," "THE MANAGEMENT AUDIT," ETC  
LECTURER ON MANAGEMENT TO THE CAMBRIDGE UNIVERSITY  
ENGINEERING DEPARTMENT FORMERLY WORKS MANAGER  
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WITH A FOREWORD

BY

A. H. POLLEN

FORMERLY CHAIRMAN AND MANAGING DIRECTOR  
OF LINOTYPE AND MACHINERY, LTD  
DIRECTOR OF BIRMINGHAM SMALL ARMS CO, ETC

*FOURTH EDITION*



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## FOREWORD

MR. ROSE'S method of analysing and presenting the figures that are—or should be—available in every business, is explained in the following pages and now named **HIGHER CONTROL**. This system arose out of no appetite either for arithmetical conundrums or statistical neatness. It was worked out to meet a clear necessity of management—one, that is, congenital to every undertaking that either produces or purchases products which it sells.

The value of the method may be said to depend upon the variety of the goods made, or acquired and sold. Success in such a business depends, obviously, upon the selection of saleable products, and varying or adding to the range as the market shows customers' tastes or requirements to change or expand. The making of profits depends—again obviously—not only on economical manufacturing or buying, in the terms of price and selling costs, but upon the quick detection both of lines which are unremunerative and of the existence of a vacuum—that is, requirements of customers unfulfilled. Higher control may be said to supply, and that automatically, a pointer to every danger point—insufficient capital, excessive costs, misplaced credit, inefficient purchasing, declining markets, unfulfilled demands, inadequate publicity, defective salesmanship—for under one or other of these heads all the chief perils of business can be grouped.

This system has proved of very patent value in the practical conduct of more than one considerable concern. By a certain irony of fate, while it was developed originally in a period of steadily growing prosperity, it was brought to its present perfection just in time to give fair warning of the slump which followed the Wall Street debacle of

September, 1929. Thus, from the first it was a trustworthy guide to increasing production in certain lines almost up to 100 per cent; and, when the tide turned, it gave prompt warning that in many lines production ought to be halved.

The analyses adopted, and the presentation of the figures which is of the essence of the system, do more than give an almost daily account of the progress or otherwise of each product or group of products. They indicate exactly where costs and expenses must be reduced when necessity arises, and the extent of the reduction. It is equally essential to the management of a factory as to laying down, organizing, and conducting a selling policy.

Neither this nor any other interpretation of the facts can, by itself, supply the imagination, the inventiveness, the leadership of men, the intuitions essential to publicity, the instinctive insight into changes in public taste, all of which are in some measure essential to the conduct of any business however well established. It cannot, that is, take the place of those qualifications and gifts without which real industrial chieftainship is inconceivable.

But there are three things that this method can do—

1. It can make any business manageable, by making its statistics self-explanatory.

2. It can give every responsible department head so exact a comprehension of how his share affects the total results, as to make sure of the eager team co-operation without which no lasting success can be relied on.

3. And finally—and this is of an importance that can hardly be exaggerated—it supplies the only certain way by which those responsible for the final supervision of an undertaking—the owners or directors, as the case



may be—can be kept steadily and exactly, informed of the progress or retrogression of each of the separate policies the board has instructed the management to pursue.

No informed observer of joint-stock enterprise during the last decade and a half can have failed to perceive two features, common to all of the many catastrophes that have resulted in serious loss of capital.

First, in almost every case, failure has arisen, not because a wrong commercial policy was initiated, but because a policy, shown by the results to be wrong, was persisted in too long. Secondly, the inability to abandon a losing game and find a winning alternative was largely attributable to this, that neither the directors nor the management realized the extent of the failure until its redemption had become impossible.

In certain tragic instances, leading to suicide or prosecution, we know that the real chiefs kept their partners or the board in complete ignorance of what was going on. Thus in nearly all, if not in all, cases, the course of the company's business was simply not understood by those ultimately responsible to the shareholders. This is not to say that there were numerous instances of conscious dishonesty or deliberate concealment of the truth. It was probably generally the case that the management was as little able as the board itself to grasp what the facts really signified.

My first claim for higher control is that it goes far to making any business manageable. My last is that it makes the responsibilities of a director a burden that any man of intelligence and some practical experience can safely undertake. It discharges, that is to say, for management, the task that auditors discharge for accounts and finance. Indeed it does more. The audit guarantees the shareholders that there has been no misrepresentation,

no malversion of funds. Higher control is an assurance that the proofs of mismanagement are so unmistakably and swiftly disclosed that errors can be retrieved before their consequences become irreparable.

A. H. POLLEN

14 BUCKINGHAM STREET  
W.C.2

1934

(The author desires to record here his deep regret at the death of Mr. A. H. Pollen, which took place on 28th January, 1937. Mr. Pollen's part in the creation of this Higher Control method has been set down elsewhere, and after the publication of the first edition of the book he continued to take a practical interest in the application of the method to industrial undertakings. He will remain in the author's memory as the ideal managing director, broad in outlook, sympathetic and humorous in his appreciation of the complexities of the human element, with an unerring instinct for picking the facts and figures which mattered from those which did not. He knew what a managing director needed to help him make a success of his business, and it is the author's hope that this fact will be recognized by those who adopt this method in the years to come.)

## PREFACE

### TO THE FOURTH EDITION

It is now nine years since the first edition of this book was published, and during that period the method has been adopted, either partially or in its entirety, by a number of concerns, some of them varying widely in type. The author can still say that no case has yet come to his attention in which it has failed in its purpose, nor has—which is perhaps more surprising in a complete system—any part of it been shewn to require modifications of any importance. This is apparently due to its extreme flexibility and the fact that it is built on the fundamentals of management technique, which are of universal application.

The present edition, like its predecessors, contains certain additions found advantageous from a more extended experience in the use of the method. It may, perhaps, be as well to set out here the more important of these, including all that have been made since the first edition was published—

#### *General Use of the Method*

Diagram of the main control framework. (Frontispiece.)

Restatement of the management functions (p. 25). A new chapter on "Checks and Comparisons" (Chap. X), explaining in detail the value of the working book, and the trend and comparison sheets, and dealing with other matters which tend to arise when making up the monthly control statements.

#### *Technical Position*

This section has been rewritten with considerable

additions round the chapter previously entitled "Works Control."

*Trading Position*

Use of gross and net sales turnover (p. 122).

Methods of finding closing stock figures (p. 128).

Definition of Direct Labour (p. 135).

Introduction of section for Adjustments in the Statement of Account (p. 155).

Definition of Board of Trade Net Output (p. 218).

*Financial Position.*

Asset Variation Statement (p. 206).

With this edition the main title of the book has been altered to "Higher Control in Management." This has been done—only after the taking of much competent opinion—in order to make it clear from the outset that the method is, first and last, solely a basis for the intelligent management of industrial and commercial undertakings, and is not in any sense a textbook on accountancy. It makes use of the normal figures produced by the accountant in his technical statements, since it is in these that the ultimate effects of the management can be seen. But if these figures are not correct, the control structure will only be misleading. Without a solid foundation of accurate and up-to-date accountancy, any attempt to obtain control over the undertaking, based upon the figures produced, is bound to be a failure.

The chapter on "Higher Control in Distribution" has been omitted, but the portion dealing with the calculation of stock values has been retained as an appendix.

The dates in the schedule-headings have, after consideration, been left unchanged. Without dates comparison between sets of figures is impossible, but since all the results used in this book are imaginary, no useful purpose

would seem to be served by changing the dates in each successive edition of the book.

The passing years have shown clearly that the use of industrial accounts for management purposes brings out a number of technical accounting problems which in the normal practice of accountancy do not exist at all. Much research work still remains to be done in this field, but this will, no doubt, evolve from the increasing recognition of the need for standards by which industrial efficiency can be judged. For that purpose this method of presenting the facts and figures of a business is peculiarly suited.

T. G. ROSE

LONDON, 1943

## PREFACE

### TO THE FIRST EDITION

THE bold idea that it should be possible to build up an interlocked system of returns by means of which the activities of an industrial undertaking could be efficiently controlled must be ascribed to Mr. A. H. Pollen, at that time Chairman and Managing Director of Linotype and Machinery, Ltd. In the Foreword which he has contributed to this book he has set out the reasons that led him to demand such a system and his own opinion of the results finally obtained. What he has omitted is any reference to his own share in making the system equal to his demands upon it.

Many years ago that pioneer of management thought, the great French industrialist Henri Fayol, in the course of his analysis of the responsibilities of industrial and general administration, pointed out the necessity for proper control in any undertaking. He put off committing to paper the opinions that he had formed in the course of his long and successful industrial career until too late. Of the four parts projected in the preface to his book on administration only two were written, and it is significant that the closing paragraph of the second part deals with the importance of control.

At the time that this higher control method was being worked out under Mr. Pollen's guidance, the earlier work of Henri Fayol was unknown to us. It was only after the system had been built up and was in the course of receiving its final touches that the publication of Henri Fayol's incomplete book by the International Management Institute of Geneva brought to our notice the fact that what we considered we had created was, in effect, the

logical completion to the administrative system on which Henri Fayol was working at the time of his death.

Judging from the advanced analytical thought that is patent throughout the existing portions of M. Fayol's work, it seems probable that, had he lived, he would have gone on to build up, from the functional responsibilities already set out, a system by which control could be effected. As it is, we have only his general opinion of the matter. Perhaps, therefore, the method here outlined, the outcome of many years of practical executive work, much hard thinking and patient analysis, much choice and rejection of different items, and finally some five years of actual use in industrial concerns, may be accepted as an attempt to solve the problem that M. Fayol had evidently visualized years ago.

Those who have had experience in the writing of a book of this nature will appreciate the vast amount of work involved in the compilation of fictitious statistics which must, notwithstanding that they are imaginary, interlock with reasonable accuracy. Genuine figures are, of course, available, but professional discretion definitely forbids their use, even when multiplied by a factor or disguised in some way. To provide the examples of board returns and charts here given it was necessary to create an entirely fictitious range of results covering monthly periods for three years, and for the patient accomplishment of this difficult task, as well as for much practical help throughout the whole of the book, the author desires to thank his assistant, Miss F. Susman.

Mr. Hargreaves Parkinson of the *Economist* has been good enough to criticize the chapter on the "Financial Position," and give it the benefit of his long experience in the financial analysis of the results of industrial undertakings.

Acknowledgment with thanks is also due to Messrs. Gee & Co. (Publishers), Ltd., of London, for permission to extract certain paragraphs from the author's paper on "The Management Audit."

As the subject of effective control is one of vital importance to industry, and the problems surrounding it are almost infinite owing to the variation of working conditions, the author would be most grateful to any readers who would take the trouble to write to him on controversial points, or on any matters in which they consider that the system might be rendered more effective.

The first book on a subject such as higher control cannot hope to do more than explore the field, and establish certain principles and particular applications. The author is conscious of many unsatisfactory definitions and insufficient explanations in the pages that follow. This is in some degree due to the fact that there are still a great many matters in financial and cost accountancy which at present depend more upon tradition than principle. Even the primary definitions are often vague, and left to individual interpretation.

The author hopes, therefore, that those critics to whom much of the book is new and unusual, in its approach to accounts from the manager's viewpoint, will not necessarily condemn it for that reason; but rather endeavour to see, more clearly perhaps than the author has been able to do, what it would mean to our national industrial efficiency if some simple system of statistical control of this nature could be universally adopted.

T. G. ROSE



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# HIGHER CONTROL

## CHAPTER I

### THE PROBLEM OF INDUSTRIAL CONTROL

SINCE the development of joint-stock companies at the end of the eighteenth century there has been a steadily increasing tendency for the personal business, directed and managed by the owner, to be replaced by the limited liability company owned by the shareholders and managed by a board of directors. There are still a great many private companies in existence in which the management is in the hands of the owner or owners, who hold all the shares of which the capital is made up, and it is in concerns of this nature that the most successful results are frequently to be found. But a far greater number of industrial undertakings are managed by a board of directors, of whom, perhaps, only the managing director will spend his full time in the company's business. The remainder of the board will have other activities, and only a portion of their time—perhaps no more than a day a month—will be given to the affairs of the concern. Yet, as directors, they will be expected by the shareholders to control the business in such a manner that success—and dividends—will result.

The duties and responsibilities of the directors of a company cannot be precisely set out, as they vary very widely. There are cases in which the managing director carries out the whole of the work in connection with the management of the concern, the chairman and remaining directors attending the board meetings once a month in

order to review results and receive the managing director's report. In other cases all members of the board are occupied for their full time in the executive business of the company and have no other interests. Between these two extremes there lie a great number of variations, and the only principle which is perhaps common to all is the fact that the directors are collectively and individually responsible to the shareholders for the safe conduct of the undertaking.

A directorate is far from being the bed of roses that it is often imagined to be. The uninitiated, accustomed to hearing of "guinea-pig" directors who attend a monthly meeting followed by a luncheon, and draw their fees for lending their names, have little idea of the incessant worry and mental strain involved in the proper guidance of the average industrial concern. A director cannot pass on the blame when things go wrong—there is no higher individual to whom it can be passed—yet things may go wrong through causes over which the board could not possibly have exercised any control, or events which no one could have foreseen.

It should always be borne in mind that the average director is forced to make, and accept responsibility for making, decisions of the greatest and most far-reaching importance on information which is often of necessity indefinite. A problem of moment arises; a quick decision must be made, and there is not time to investigate fully all the ramifications of circumstance which may lead to a given decision being good or bad. The information available has to be accepted for what it is worth, discussed, and then, from the combined experience of the board, the policy must be settled and action taken without delay.

Thus the information upon which a board bases its decisions is really the key to the effective management of the concern, and in accordance with whether that information is sufficient or not, the decisions are likely to be sound or unsound. It is just for this reason that many an able man hesitates when asked to join a board. He does not doubt his own capacity to bring mature experience and a wide outlook to the meetings of his future colleagues, but he fears that the methods in use for providing the board with information may be inadequate to enable him to carry his responsibilities with a quiet mind.

Again, the reasons for which individuals are appointed to seats on boards of directors almost always imply special qualifications

of one form or another. It is obvious that a board ought to be composed of men experienced in every phase of industry. To have a board entirely made up of individuals of similar class of experience could not possibly result in that widespread outlook which is so eminently necessary for the safe conduct of affairs. It follows, therefore, that the most effective board is likely to be one in which commercial, technical, and industrial experience are represented, as well as specialized knowledge of the particular business concerned, guided by some individual who can unite all this knowledge, and add to it that sense of values which can only be acquired by many years of intimate connection with the larger problems of industry. But this variation in experience and qualifications, though of vital importance to the welfare of the concern, enhances the difficulty of the individual directors in carrying out the duties involved in their office. An individual may be made a director on account of his high reputation as a financial expert, and yet he will have to be equally responsible with his co-directors for a technical sales policy which is entirely outside his line of experience. He himself, in giving his opinion, can only rely upon the information laid before the board, and where such information is behindhand, incomplete, or inconclusive, he knows that he cannot hope to give that assistance to the deliberations of his colleagues that he feels is expected from him.<sup>1</sup>

The director, therefore, is faced with two problems: firstly, the difficulty of assisting his company to make headway against the endless trade obstacles which are for ever arising, and, secondly, to make sure that his company, as far as the detailed management is concerned, is being handled efficiently in the struggle. To the first of these problems he can only bring that specialized knowledge which his previous experience has given him; and to help him solve the second he looks to those whose duty it is to supply the board with proper information. He expects to have placed before him such facts and figures as will enable him to keep a close survey of what is going on inside the business. Over the outside problems he can exercise but little control, but what is going on inside the organization of his concern should be ascertainable. The main difficulty lies in presenting this

<sup>1</sup> *The Management Audit.*

information to him in such a manner that it can be quickly and easily assimilated.

More especially important is this to the managing director himself.

If the burden of the average director is a heavy one, that of the managing director is doubly so, because not only has he to carry the responsibilities that arise from his position on the board, but it also falls to him to put into effect the policies decided by the board, and to supervise the activities of the entire organization in the course of carrying out those policies. He has both to plan and to execute; he has to originate the policies on behalf of his colleagues, and also to provide the information that is necessary for a balanced viewpoint; he has to guide the deliberations from his own combined knowledge of conditions within and without, and, lastly, when the decision is made, he has to put it into effect and bring about a successful result.

The managing director must, therefore, of necessity exercise greater influence than any of his colleagues over the conduct of the undertaking, since by virtue of his office he is bound to know far more about internal conditions than the other members of the board, who, in a great many cases, are only expected to give part of their time to considering the business of the company. The extent to which those colleagues can help him must depend upon the extent to which he can help them—by keeping them in touch with what is happening, and providing them with the sufficient information previously mentioned. The more helpful that information is, the more the advice of his colleagues can lighten his own burden, making the final decisions a common agreement in policy rather than the mere adoption of his own opinion.

The question of what this information should cover if it is to be complete and effective is of great importance. The information normally required by the head of an undertaking can be divided into four groups—technical, business, trading, and financial. Information regarding technical problems will probably be drawn from the minutes of the Technical Committee and cannot properly be said to come under the heading of control,<sup>1</sup> although the knowledge which they impart will no doubt have considerable influence in the determination of the ultimate policy.

<sup>1</sup> This was written in 1932, when control research was in its earlier stages. Subsequently it has become clear that the technical aspect of the company's activities has so much influence on the going concern that it has now been brought into the general scheme of control (see Frontispiece to Fourth Edition).

The business information—the orders received, the invoices issued and the orders outstanding—is largely a matter of straightforward addition and analysis. The trading and financial information, however, brings us to the monetary side of the problem and is, therefore, handled by the company's accountant.<sup>1</sup>

It is worth remembering that in every concern which is not a philanthropic affair success or failure of the business is measured by the profit and loss account and the balance sheet. Every occurrence that takes place in the conduct of the firm represents income or expenditure, and it would probably have a very tonic effect on the average staff if this point were more frequently emphasized. Sooner or later, therefore, the accountant has to produce a record of such occurrences, showing how the innumerable receipts and expenditures have balanced, and how the fortunes of the concern stand.

It is from the accounts department that the majority of the facts and figures relating to the position of the company are obtained. In some instances the sales department is the source of information regarding orders received, invoices issued and orders outstanding, but the accountant might well be responsible for providing these figures for the purposes of control—whatever additional statistics be kept in the sales department—in order that a proper check may be kept on the accuracy of the company's figures.

It is on the accounts side that in a great number of concerns the weakest point in the management organization is to be found. There are many firms to-day who are still satisfied with an annual profit and loss account and balance sheet, and who carry on in the twelve months that intervene with a series of rough checks which have been adequate enough in the past, and which they are loath to abandon for better methods. Naturally, in

<sup>1</sup> *Op. cit.*

cases such as these, there is no question of control in its true sense.

There is a much greater number of firms who are content with quarterly or half-yearly statements of the position. Here, again, there is no real control, although it is certainly easier for the man at the head of affairs to see where he stands than it is for the man who only has his position stated once a year.

A steadily increasing number of undertakings, however, are now adopting monthly profit and loss accounts and balance sheets, and it is at this point that effective control becomes a possibility.

Yet even in the concerns where monthly figures are available the actual control that exists is often extremely slight. This is to a great extent due to the fact that the typical accounts department has for generations been working not only on definite lines, but with very limited boundaries to its sphere of activities. It is only recently that newer ideas have evolved, demanding not only technical accuracy in accountancy methods, but also constructive service to the chief concerned. A generation ago the accountant of a company was merely the head book-keeper, whose duty it was to see that the books were neatly and accurately kept, that income and expenditure were properly allocated, and the balance sheet correctly drawn. The idea that the accountant could take a constructive and intelligent part in the management of the undertaking was entirely without recognition, and an accountant who showed such an interest in the conduct of the business was usually snubbed for his pains. The "counting house" was a private corner of the establishment, a water-tight compartment which produced statements at regular intervals, but limited its activities strictly to the production of those statements on recognized accountancy lines, and left it to the management



to derive what benefit they could from the information supplied.

From about 1920 onwards, however, this attitude has been altering. It is beginning to be recognized that the accountant of the company is a very vital link in the organization generally, and that since every occurrence taking place in the conduct of the business is reflected sooner or later in the profit and loss account, the accountant's figures are really the key to the whole trend of the company's affairs. The water-tight doors are being forced open, and the accountant is beginning to take his proper place in the senior rank of managers.

This tendency could be observed during the 1920-30 period, from the manner in which accountants of note and experience were placed in charge of industrial undertakings. The growth of this practice was largely due to the action of banks who found themselves, when the post-war boom was over and the depression began, with heavy industrial commitments. To obtain the impartial opinion of an expert accountant on the situation was the only method by which they could see clearly how they stood, and so the principle grew up for the bank in question to appoint an accountant to represent them on the board of the company and watch their interests in the future.

In cases where the accountant is at the same time an experienced business man he can unquestionably render very valuable service, both to the bank and to the firm that is in difficulties, since the training of an accountant brings him perpetually up against hard financial facts, and his experience enables him to analyse the financial position of a company accurately, and so avoid oncoming difficulties which a less expert outlook would not foresee.

But the outlook of the average bank in industrial matters is essentially one which calls for the conservation

of assets rather than the development of business, and where this attitude has been too strictly adopted by the accountant-controller it has undoubtedly had a deleterious effect on the conduct of the concern.

Moreover, the appointment of an accountant to a position of authority in a concern does not necessarily mean that there is any real control of that concern in the true sense of the word. The normal periodical accountancy statements consist of the trading account, the profit and loss account, and the balance sheet. These three statements can be found in an infinite number of forms, and the lines on which they are put together appear to depend largely upon the personal opinion of the accountant. On the whole they are much more what might be termed formalized arithmetical calculations than a developed picture of what is going on from the management point of view. The average managing director does not claim more than a sound working knowledge of financial accounts, and since financial accounts must balance accurately, more often than not the three statements mentioned above contain items and cross-entries which tend to confuse any persons who are not trained accountants.

Accountancy statements are bound to be drawn up from the professional standpoint. The managing director needs those statements for management purposes, and takes it for granted that technically they are correct. He is forced, therefore, to begin where the accountant leaves off, and by extracting and combining entries and items he puts together something which will help him in his management problems.

This is by no means a universal state of affairs, however. In the accounts that are to be found in industrial concerns it is possible to meet all degrees of assistance to the manager, from the unhelpful and complex financial

schedule to the clear, developed picture built up from accountancy figures. Much depends upon the outlook of the accountant himself, and the extent to which the managing director has encouraged him to collaborate in the management problems. Since this range of method undoubtedly exists there are bound to be critics who will contend that there is no difficulty in making the normal accounts of constructive assistance to the manager, that they already do so, and that what they are doing is so satisfactory that they need nothing more.

In a few exceptional cases this may be true; but in the vast majority of firms the accountancy work is restricted entirely within professional limits, and where this is so, no blame should attach to the accountant. He is doing his professional work, and whilst it is obviously of advantage for the further stage of control structure to be handled by him, it arises from, and does not form part of, his professional duties—at any rate at the present time.

But experience of working this control system for a number of years in industrial undertakings has shown that the accountant, if he is to arrange his accounting results from a management standpoint each month, meets with an entirely new set of technical accountancy problems which, under the ordinary accounting conditions, do not exist at all. Management is based upon comparison, and comparison implies a standard against which that comparison can be made. It is therefore important that the monthly results provided by the accountant should be prepared with a view to showing the divergence from the normal, rather than the haphazard recording of whatever may have occurred within the precise limits of the period under review.

Hence the new problems; and it will take time for the skilled and conscientious accountant to recognize the

fact that the needs of control work often entail, in order to avoid misleading the manager, adjustments and transfers between months to which he might justifiably object if the sole end of his statements was to show the final result of closing his books for the period.

It may be that at some future date the presentation of accountancy results from the point of view of assisting management will form a recognized part of the professional accountant's training. But that state of affairs is not likely to come to pass for many years, and at present the gulf between the technical accountancy statements and what the managing director needs to help him to manage his concern must be bridged more by goodwill than responsibility.

## CHAPTER II

### THE BASIS OF COMPARISON

WE have seen that the ordinary accountancy statements are the trading account, the profit and loss account, and the balance sheet. These statements present only the position of affairs at the moment. They show the profit or loss for the period under review, and they may, in addition, show the figures for the current month; but usually all expenses and income are recorded as the cumulative figures for the period. In the case of the trading account they will give the opening stocks at the beginning of the period, and the closing stocks at the end of the period, but apart from these the figures laid before the board give only what might be termed the static position at the moment.

A consideration of the ordinary three statements mentioned above will show the gulf which exists between what accountancy at present provides and what the managing director wants. The trading account, for instance, will show on the left-hand side of the page the opening stocks and work-in-progress, various items of expenditure relating to the manufacturing or trading, and the gross profit which is carried to the profit and loss account. On the right-hand side are shown the sales, miscellaneous items of trading receipts, and the closing stocks and work-in-progress, both sides naturally balancing.

Now the managing director is considerably interested in the rise and fall of his stocks and work-in-progress. He knows that his ratio of stocks to turnover is most important and he also knows that it is vital to keep his work-in-progress as low as possible. Neither his stocks

nor his work-in-progress should increase, unless his turnover is rising steadily.

But to find the position of these two important items from the ordinary trading account it is necessary for him to look from one side of the page to the other, and if the items of stock and work-in-progress are subdivided under a number of headings it is not too easy for him to get a quick impression of what is going on.

He then turns to his profit and loss account. On the left-hand side he will find thirty or forty items of expenditure of all kinds, from telephone charges to directors' fees, and on the right-hand side the gross profit from the trading account and such other sundry income as may accrue. The final profit carried to the balance sheet he will find entered on the left-hand side amongst the expenses, or if the result for the period is a loss he will find it entered on the right-hand side amongst the income.

It is the profit and loss account that in many cases fails so badly to give the managing director any real help. It appears to be rare to find a profit and loss account in which expenses are properly segregated under the divisions which appear natural to the manager—in which, for instance, the total expenditure of the sales department can be seen. It is unreasonable to expect the managing director to go through each item individually and discuss whether it is too high or too low, since unless such expenses are, as in the case of departmental stores, expressed as a percentage of the sales turnover, he has no yardstick by which he can measure whether they are right or wrong.

From an accountancy point of view it is difficult to avoid including the sundry income in the profit and loss account, but this is often very delusive, as the balancing figure of profit tends to make the managing director overlook that portion of his profits which comes from sources other than the normal trading activities of his concern.

He may be making a loss on his trading, and yet a profit on the concern as a whole, owing to a large income from other sources.

The balance sheet, which is the statement of the assets and liabilities of the company at the moment, repeats certain of the items already given, such as the value of the stocks and work-in-progress and the final profit or loss for the period. Here, again, the information which is provided is seldom as much used as it might be if it were properly arranged, with current assets compared clearly with current liabilities, and net worth shown separately from the total liabilities.

The truth of the matter is that the need of the managing director for information that will show him clearly what is going on in his business in these difficult days has led to an attempt to force the trading account, the profit and loss account, and the balance sheet, into serving a purpose for which they were never intended, and for which they are not designed. Some other form of arrangement of the facts and figures brought out in these accountancy statements must be found if the managing director is to be provided with material that can be of constructive assistance to him in his management problems. For the accountant is compelled to seek for balances in his accounts, and to achieve this he must make entries which are more technical than real from the layman's point of view. Assets and liabilities, income and expenditure, receipts and payments—each must balance with the other if the true financial position at a given moment is to be ascertained. This calls for entries dealing with prepayments and residual values, and often a whole series of reserves of one kind or another. So that the completed statement, though admirably clear from the viewpoint of professional accountancy, becomes a *Torquemada*

crossword puzzle to the man who lacks the accountant's technical training.

Now all management must be based upon comparison. Our whole attitude towards life is a series of voluntary or involuntary comparisons between the state of things in which we live and the state of things in which we would prefer to live. So management in industry calls for incessant comparison—comparison between one day's results and another's, this week's orders against last week's, one month's expenditure against the previous month's, and so forth. If, therefore, the task of the managing director is to be made easier as far as the presentation to him of his facts and figures is concerned, some basis of comparison must be found which will enable him to visualize what is going on without having to make calculations or mental adjustments of his own.

The outlook of the man of senior rank in industry is usually broad and general. His constant pre-occupation is to shield his concern from the attacks of circumstance. His daily round of work is, as a rule, one long series of facing and overcoming problems of all kinds, and this brings about a point of view which is much more general than detailed. The managing director who delights in investigating details is not likely to be as successful as the man who keeps to the broad viewpoint, and when it comes to surveying the position of a going concern it will usually be found that, in the eyes of the man with the broad viewpoint, the natural yardstick by which he measures his performance is the result from the last financial year.

The following extract from the speech of the chairman of a large concern is an excellent example of this fact—

It is again my privilege and pleasure to review these accounts with you. They reveal the most encouraging position we have



had for some time, and my pleasure is enhanced by the outstanding fact that, while the trading results *for the previous three years* showed a decrease in net profit, *this year's results* show an increase of £53,000.

When concluding my remarks to you at the general meeting *last year*, I referred to the outlook for our own business for the *then current year*, and ventured the opinion that we had seen the worst of the trade depression in this country. That opinion has been justified by the results of *last year's* trading.

The total net profit *for the year* just closed, after charging all expenses of the business, including ample provision for depreciation, amounts to £691,601, against £638,649 in *the previous year*, thus showing the increase to which I have just referred, £53,000, and I feel sure you will consider this a most gratifying result.

It should be made quite clear that the increased profit of £53,000 is entirely the result of the trading of Harrods, and is not affected by any of the increased profits *for the year* of either of our subsidiary companies.

The parent company's profit and loss account is credited only with dividends actually received from these two subsidiaries. The dividends credited to our accounts *this year* are exactly the same as *last year*. I am pleased to say, however, that the improvement we have experienced in Harrods' trading results *for the year* has also been experienced, more or less, by our two subsidiary companies—Dickens & Jones and D. H. Evans.

The *first half of our year's trading* showed a small decrease in sales. It was not until we reached the end of September, in the *second half of the year*, that we experienced a definite turn in the tide. From that time trade continued to improve *until the end of our financial year*, with the result that we can report—

an increase in the number of customers' transactions, an increase in the average value of the transaction, and an increase in the total sales *for the year*.<sup>1</sup>

Whether the comparison is favourable or unfavourable, it is voluntarily or involuntarily in the managing director's mind made on the results of the last financial year. It is only necessary to observe the complications caused when a firm for some reason or another puts forward accounts covering a nine or fifteen months' period at its annual meeting, to appreciate how completely the financial year

<sup>1</sup> Extract from *The Times* of Friday, 2nd March, 1934—Sir Woodman Burbidge's speech at 44th Annual General Meeting of Harrods, Limited. (Italics are mine.—T. G. R.)

is the standard by which we judge a trading concern. In the lower ranks of management it will often be found that the month is the mental basis of comparison, the year's results being left in the lap of the gods. But the responsible head of the concern cannot help basing his policies on what happened last year, and what is likely to happen this year. To him the monthly results are only milestones on the journey from one year's end to the next. It is obvious, therefore, that if the managing director is to know his true position at any time during the year, he must be able to visualize that position on an annual basis of some kind.

This is a principle which should be carefully considered by the reader before he proceeds any further, because it entails an almost revolutionary alteration in the outlook of the average individual engaged in business or commerce. Most of us have been accustomed all our lives to check up on monthly or weekly results, and have become accustomed to comparing these results with the result obtained for the same period last year. To think in years instead of weeks, months or varying periods, is new and therefore confusing, and we are naturally reluctant to relinquish the use of our old landmarks.

In the accountancy statements as presented at the present time, the opportunity for the managing director to compare the position at the moment with the position at the end of the financial year very seldom occurs—apart from the balance sheet, in the case of which that comparison can be, and often is, easily provided. But the balance sheet itself, however important it may be, is only one factor in the situation. The managing director has to be able to compare his orders and sales, income and expenditure, profits and losses month by month directly against the results for the last financial year, and the best and

simplest method to achieve this is the use of the moving annual total.

A moving annual total is made up by taking the results at the close of the last financial year, and at the end of the following month adding the results for the new month and subtracting the results for the corresponding month of the old year. In this way a twelve-months' total is again obtained, ending with the first month of the new year. As the year proceeds, each new month's result is added to the previous total and the corresponding month of the old year subtracted. It will be seen therefore that when the new financial year comes to an end all the old months will have been subtracted, and all the new months added in, and so the moving annual total becomes itself the final result for the current financial period. In each month the managing director has been able to compare his position at the moment directly and without any calculations with his position at the end of the last financial year.

In itself this principle may seem almost absurdly simple, yet the use of the moving annual total or trend for the purpose of establishing a direct comparative base for all management purposes is probably one of the greatest advances that has been made in the technique of administration for many years. The value of such trends was emphasized when what is known as the Z-chart first came into use, but it is only recently it has been realized that by the use of these trends fluctuating results can be compared and controlled with a degree of accuracy which would be quite impossible if only current monthly figures were used.

For instance, the comparison between sales turnover and profits or losses is one of vital importance. Yet it is quite impossible to set up any true relation between these two items except by comparing the moving annual totals. Sales turnover may fluctuate considerably, especially

where large units are invoiced, and profits and losses will also vary in accordance with the class of goods sold, and many other factors. A true relation between profits and sales on a single month's results is only possible in a few types of business; a longer period must usually be taken, and in actual practice three- and six-monthly periods are often used. But the moving annual total provides the perfect period, in that as the twelfth month comes round the moving annual total figure that has been used for comparative purposes month by month automatically becomes the result for the current financial year—and thus no sudden and unexpected discovery of an unfavourable position can arise.

Any item of income or expenditure can be related to another on this twelve-monthly basis, and at once a field of management comparisons becomes available which completely alters the outlook of the manager, and enables him to make a far more full and complete use of the accountancy statements with which he has hitherto been working.

This trend method of control has a further aspect invaluable to those who are seeking to know the true position of affairs, in that it entirely eliminates all seasonal business fluctuations. There are very few businesses indeed which are independent of seasonal demands. Certain classes of concern are quite definitely seasonal in character, dependent upon whether their goods are in demand in the spring, summer, autumn, or winter. This seasonal effect penetrates into almost every business, whether directly or indirectly, and in the past statistical bureaux and those responsible for the preparation of official returns have devised various means by which seasonal variations are adjusted.

But the moving annual total or trend method disposes

of the seasonal problem by the simple and effective means of always providing a twelve-monthly figure for comparative purposes, and it is obvious that the twelve-monthly figure must contain a full range of a year's fluctuations.

The fact that a colliery, for instance, makes losses in June and July and profits in December and January becomes, therefore, of little importance to the colliery

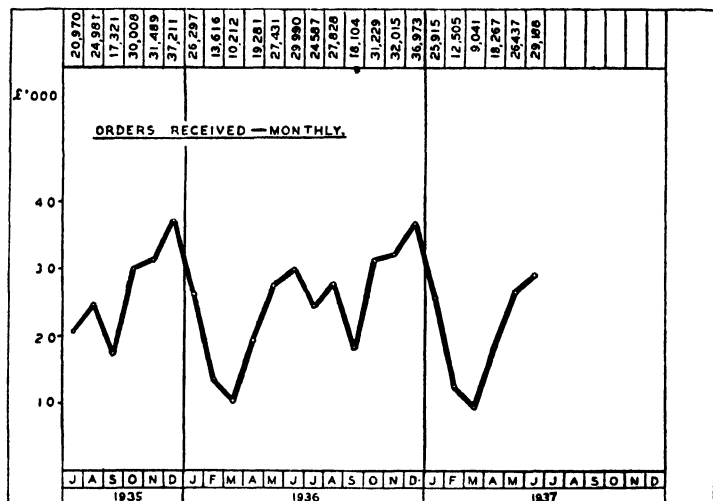


FIG. 1

manager compared with the information as to whether his losses this June and July are greater than they were last June and July, and are thus causing the profit trend to fall. He may make a loss with equanimity if that loss is less than he made in the same month of the previous year, since his trend will then be rising and he will have evidence that the position of his concern is improving.

In the same way, he will have less opportunity of becoming impressed with the handsome profit he has made during December if that profit is less than what was made last December. In that case his trend will show a fall, that is, a worsening of the position, and he

will be forced to notice that in spite of his profit matters are not going so well.

The effect that the trend curve has in eliminating seasonal fluctuations will perhaps be more clearly shown by an actual example. Fig. 1 shows the monthly sales turnover of the Blank Co., and in the two complete years shown a definite seasonal fluctuation is observable. The

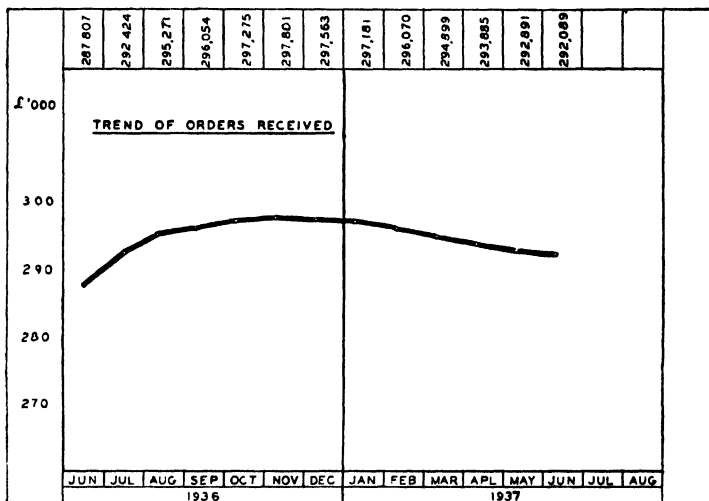


FIG. 2

sales are at their lowest in the spring, rise sharply towards midsummer, falling away again in the early autumn. The maximum turnover is in December, perhaps due to Christmas trade.

From a casual glance at Fig. 1 the reader would find it difficult to see whether the general sales position was showing much alteration. The fluctuations appear to be very similar, and undoubtedly the average reader would say that there was very little in it. If, however, a trend curve be made on the M.A.T. principle, the result is shown in Fig. 2, and from this trend curve it can be clearly seen that the sales throughout the second year were definitely

improving until November, but from that point have steadily fallen away until the end of the financial year.

The trend curve in this case is so clearly defined that the reader naturally turns back to the current curve to see how it was he could not see the same thing from the current results. Careful examination of the current figures for the corresponding months of each year will show that the second year's, from November onwards, were always slightly less than the same months of the previous year. The difference was, however, so slight that it could easily be passed over as of no significance, and it is only when the difference between the two sets of monthly results is set out on the trend method that the continued decrease in business for seven months in succession becomes clear.

The example is an imaginary one, drawn up on purpose to show how small fluctuations that are lost in the current results become obvious when the trend method is used. It is not likely that genuine sales turnover figures would show so close a likeness between two different years, but it is imperative in control work that small fluctuations should be brought to light when they are of importance to the management, and for a business to show a continuous shrinkage in sales turnover for seven months is a matter that should be brought to the attention of the managing director in some clearly defined manner.

When the company's books are made up at the end of the financial year, and the trading account, profit and loss account, and balance sheet presented, they form a final and approved record—after audit—of the true position of the company at the end of the twelve months' trading period. Every item of income, every item of expense, must have a total for the year, and, starting with these, by using the moving annual total method the managing director can watch month by month as each new month's results are added and the corresponding month in the

previous year subtracted. In this manner he can rest assured that the results are tending in accordance with his intentions.

There is no form of statistical return which cannot be expressed in this trend method. If a physical unit is involved instead of a sum of money, the price per hundred-weight, for instance, the moving annual total of the money value divided by the moving annual total of the units gives a moving annual average which shows equally clearly the trend of that unit price—in this case per hundredweight.

The value of the trend method is increased, also, by its suitability for the presentation of results by means of a simple line chart. There is no need to insist here upon either the value of the graphic method or the pitfalls presented by a too enthusiastic use of it. There are many firms to-day who present their results in graphic form, and it is usual to find the current and/or possibly cumulative results traced in thin coloured lines on squared paper. Such charts are more often than not "blind," i.e. the figures from which they are made are not written in on the charts. Consequently, although in a sense they present a picture of the results recorded, it is a picture which does very little good to the reader. In most businesses current results usually show up as a series of peaks and valleys, the sharpness of the peaks depending upon the particular scale used. As a well-known authority<sup>1</sup> once remarked, if you present to a board of directors a chart where the peaks are acute angles they become restless; but if the chart scale be altered so that the peaks become obtuse angles they remain unmoved. There is much truth in this somewhat cynical view of the reaction of the average mind to graphical methods, and it is in this very fact that the relative uselessness of charts based upon current and cumulative results arises.

<sup>1</sup> The late Lord Stamp.



If control is to be effective the study of figures and charts must be brought down to the irreducible minimum as far as the managing director is concerned, for if we merely transpose a vast mass of statistics into a vast mass of charts we shall be no better off.

With the trend method, however, we can watch whether expenditure is keeping level or moving upwards or downwards, and whether income is moving in a corresponding manner. If, therefore, the results of the concern are recorded month by month by the trend method, and the trend lines only entered on the chart, the only charts that the managing director need look at are those which are moving in the wrong direction.

Moreover, the trend method lends itself to the fixing of quotas. Let us say that the trend of the sales turnover for December in a certain concern stands at £122,000 per annum. According to the programme set previously, at the end of December the sales turnover should have stood at £127,000, i.e. £5,000 per annum more than the actual result. Looking at his programme, the managing director sees that he was aiming at reaching £130,000 per annum by the end of January.

He finds that the sales for the previous January amounted to £5,000; to bring his trend back to £130,000 per annum, in accordance with his programme, he will have to accomplish a sales turnover for January of £5,000 to equal last year's result, and, in addition, £5,000 to regain what he lost in December, and £3,000 to give him his increase from the December to the January quota—or £13,000 in all. This gives him a quota to work to, and so a chance to prevent his concern from getting out of hand before he has had time to take the necessary policy action to pull it together.

The trend method in this way provides that normal and straightforward basis of comparison which any man

in charge of a concern must have if he is to watch how things are moving. No other basis of comparison gives him so clear a view. The cumulative figure for a period certainly provides a comparison between the position of the company at the moment and at the same period last year, and shows whether matters are getting better or worse; but it will be found that the cumulative method of comparison—since it remains subject to seasonal influences—always leaves a feeling that anything may happen in the period still left, and has not the same effect upon the mind as the direct method of comparison of the results with the last financial year—quite apart from the fact that two lines are more difficult to watch than one.

There always have been, and always will be, a large number of factors in the industrial situation which are completely outside the control of the industrial leader. Currency problems, tariff barriers, and embargoes, competitors' activities, fashion, and, in some cases, weather conditions—in none of these can the man in charge of a business do more than watch their changing aspects and weigh up how they are likely to affect him personally. But the fact that there are many external circumstances impossible to control does not in any way minimize the importance of obtaining and keeping control of internal circumstances—in fact, it is all the more reason for so doing. If our equation must perforce contain several unknowns, we can at least state clearly the factors that are—or should be—known.

## CHAPTER III

### STATISTICAL ARRANGEMENT AND ITS IMPORTANCE IN CONTROL

SUCCESSFUL control of any activity can only be obtained by a thorough understanding of the different actions of which that activity is made up. All results have an action behind them, and that action is in itself the result of some other action. To control the final result, therefore, it is necessary to control the contributory actions as far back as possible, and the further back such control can be taken the more likely it will be that the final result will be successful.

It is of the greatest importance, therefore, to make sure that the statistics relating to the activity of an industrial concern are prepared in some logical manner, and since the whole object of obtaining those statistics is to use them as an aid to management, it follows that the preparation of such statistics should be done on a management basis.

There have been various attempts, from the days of Henri Fayol onwards, to segregate and set out the different management functions. The writer proposes to adopt the arrangement now generally accepted by responsible research workers in the field of management technique, as follows—

1. Production.
2. Distribution.
3. Development.
4. Accounts and finance.
5. Legal and secretarial.
6. Personnel and industrial relations.
7. General management.

The production function covers the whole of the manufacturing or producing activity; the distribution function covers all matters connected with selling, advertising, and, in fact, the disposal of the product to the consumer. These two functions are distinct and easy to segregate as far as expenditure is concerned.

The development function covers the development of sales markets, the development of production methods, and the development and improvement of the product itself. All these are clearly a charge on the general running of the concern, since if the business is to continue prosperous it must perforce develop and not stagnate. The extent of such development is a matter of major policy for the administration to decide. The allocation of the cost of this department, therefore, will have to be decided by the managing director. Part clearly goes to the sales department, part to the production department, and part to the general expenses of conducting the business.

The accounting and financial functions, together with the secretarial and legal side (which includes the management of the office), are chargeable to the administrative side of the business.

The function dealing with personnel and industrial relations, covering as it does the engagement and discharge of both manual and clerical operatives, and the handling of all social and welfare matters, including works committees of all kinds, pervades the whole structure of the concern. The question as to how much of the cost should be chargeable to the factory and how much to the administrative side, or whether the whole cost should be considered a general company charge, is for the managing director to decide.

The seventh and last function, "general management," covers the higher administrative side, which is responsible for watching and controlling all the other functions, and

maintaining the undertaking in a satisfactory and efficient working condition.

It is sometimes suggested that this should be designated, as the first, and not the last, primary function of management, since it exists from the moment that the company comes into existence, before any of the other functions have emerged. On the other hand, it is usually felt that in a going concern it is the general management function which presides over and guides the other functions on sound lines, and is as it were a final summary of the activities of the whole business.

The writer has therefore adopted this latter view as the accepted practice in management technique at the present time.

From the above it will be seen that the management of an industrial undertaking can be, broadly speaking, divided into three activities—production, distribution, and administration. If, therefore, we are to obtain control over the concern through statistics we must arrange to break up the great mass of figures that arise in any industrial undertaking into these three sections. We need to keep separate the production expenses, the distribution expenses, and the administration expenses, so that when we consider the position of the company from the business, the technical, the trading, and the financial standpoints—which, as we have seen, cover the whole of the activities of an industrial concern—we can determine whether the profit or loss of the undertaking is being influenced by excessive or insufficient expenditure under any of these four headings.

The statistics required for control purposes can be built up on two kinds of unit—the physical and the monetary—and it leads to a good deal of confusion if these two aspects are not kept separate up to a certain

stage in the control returns. Perhaps this matter will be made somewhat more clear by Fig. 3.

The example taken would be suitable for a concern with a production output measurable in tons, but the

STATEMENTS REQUIRED FOR CONTROL  
INFORMATION

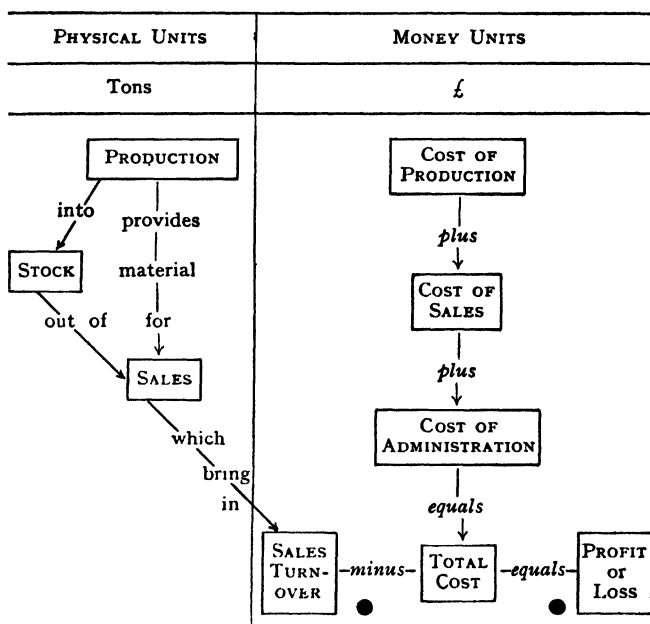


FIG. 3

principle holds equally for physical units of any kind, whether weight, capacity, or items such as machines.

Such a concern has a production output which provides material for the sales; some of the output may go into stock or some of the sales may come out of stock. But the fact remains that production is the first primary operation, and as such should be the basis upon which any control is built.

The sales bring in revenue in the shape of the sales turnover. This is the point at which the physical unit

connects with the money unit, so that the profit or loss in terms of money is reached at the finish.

On the money side there is the expense arising from the production output, the expense arising from bringing about sales, and the expense arising from the general administration of the concern. These three added together give the total expenditure, and this total expenditure subtracted from the sales turnover gives the profit or loss for the period.

It is not unusual to find statements laid before the managing director in which the physical and monetary units are confused. Frequently the physical position calls for statements of a complicated nature; stock records, for instance, can provide very extensive documents. It is best, however, to try to keep the physical statements separate, with the principal physical statement providing a summary in terms of money in which the latter can be recognized amongst the figures arising from the financial statements.

In other words, the physical statements should work up to a culminating figure; that figure should be expressed in terms of money, and that financial figure should form the link between the physical changes and the financial changes.

The next point that arises is that the different statistics recorded must be rated in importance according to their value as a source of information to the managing director, in order that they may be brought to his attention in accordance with their significance. The whole range of results must be set out in some descending sequence of influence on the business, so that if the managing director has little time or inclination for the analysis of his results, it may be easy for him to check over the most important ones and leave the rest to look after themselves.

This can perhaps best be explained by a simple example.

For the month of August a company has a sales turnover of £10,101. This sum is made up of £2,030 in Department "A," £1,013 in Department "B," £1,525 in Department "C," £2,012 in Department "D," £495 in Department "E," and £3,026 in Department "F." Department "A" markets five different classes of goods, and the total turnover of £2,030 for that department was composed of £411 of class "A 1," £299 of class "A 2," £405 of class "A 3," £106 of class "A 4," and £809 of class "A 5."

The usual method of placing these facts before the managing director would be in the form of the statement shown in Fig. 4, setting out the sales turnover of classes "A 1" to "A 5," comparing them with the corresponding results of the previous month and/or the same month in the previous year. The remaining departments, "B," "C," "D," "E," and "F," would be split up into their various classes in a similar manner, and the total of the sales turnover would be shown at the bottom of the page. The entire statement would form an excellent source of information for the sales manager, but the submission to the managing director in this form tends to call his attention too much to details.

Fig. 5 shows the same statement drawn up in a different way. Here it will be seen that the eye first falls upon the total sales turnover for the month, and at the same time the trend at date is compared with the trend at the end of the last financial year.

Beneath the total figure are shown the six departmental totals which go to make up the whole, and in each case the trend is given. From this it can be seen that Departments "C," "D," and "E" are doing better than they were at the end of the last year, and the remainder are not doing so well.

That is what the managing director wants to know in the first instance. The detailed results of the sales of the



BLANK COMPANY, LTD.

SALES TURNOVER FOR MONTH OF AUGUST

	£	£
<i>Department "A"—</i>		
1. Model "A" . . . . .	411	
2. Model "B" . . . . .	299	
3. Model "C" . . . . .	405	
4. Model "D" . . . . .	106	
5. Model "E" . . . . .	809	
TOTAL . . . . .		2,030
<i>Department "B"—</i>		
1. Model "X" . . . . .	288	
2. Model "Y" . . . . .	396	
3. Model "Z" . . . . .	329	
TOTAL . . . . .		1,013
<i>Department "C"—</i>		
1. Model "L" . . . . .	775	
2. Model "M" . . . . .	218	
3. Model "N" . . . . .	101	
4. Model "O" . . . . .	431	
TOTAL . . . . .		1,525
<i>Department "D"—</i>		
1. Model "P" . . . . .	1,714	
2. Miscellaneous . . . . .	298	
TOTAL . . . . .		2,012
<i>Department "E"—</i>		
1. Model "Q" . . . . .	173	
2. Model "R" . . . . .	322	
TOTAL . . . . .		495
<i>Department "F"—</i>		
1. Model "S" . . . . .	1,152	
2. Model "T" . . . . .	347	
3. Model "U" . . . . .	236	
4. Model "V" . . . . .	724	
5. Model "W" . . . . .	103	
6 Miscellaneous . . . . .	464	
TOTAL . . . . .		3,026
GRAND TOTAL . . . . .		£10,101

FIG. 4

different models in the different departments are omitted, to be given only if there is time for them to be examined. The results are available, and if the managing director has time to investigate them, they can be supplied. But

from the shorter statement the managing director has obtained the information that three of his departments are doing better than they were at the end of the last financial year, and three are doing worse, which is of more importance to him from the senior management point of view than the detailed figures shown in the old form of statement, Fig. 4. These merely provide the results for

BLANK COMPANY, LTD.  
SALES TURNOVER FOR MONTH OF AUGUST

	Monthly Result	Trend at Date	Trend at End of Last Year	Up or Down on Last Year
TOTAL SALES TURN- OVER . . . .	£ 10,101	£ 125,333	£ 130,641	Down
Department "A" .	2,030	24,201	26,357	Down
Department "B" .	1,013	8,957	9,763	Down
Department "C" .	1,525	18,109	17,243	Up
Department "D" .	2,012	27,374	25,198	Up
Department "E" .	495	7,496	6,318	Up
Department "F" .	3,026	39,196	45,762	Down
TOTAL .	<u>£10,101</u>	<u>£125,333</u>	<u>£130,641</u>	<u>Down</u>

FIG. 5

the current month, and give no idea how the business is progressing.

A constant effort must be made to draw the attention of those who have to direct affairs to the results in their order of importance. The reason for this is that a line must be drawn somewhere as to the amount of detail that is laid before the managing director. The figures given above tell him what the trend of the sales of his whole company is doing, and how that trend has been influenced by the trends of his six main departments. All may be doing well, with rising trends, and therefore there is no

need to waste his time by detailed figures. Again, four departments may be improving and two showing evidence of falling off in the trend; if he has time and inclination he can then call for the subsidiary figures showing the sectional results of the two erring departments, and from the trends of the sectional subdivisions of these departments see which sections are doing so badly that they are causing the whole department to fall off. It should be noted that he only looks at the results of those two departments and does not waste any time over the four that are doing well.

In control work it is the practice to assess the figures obtained as primary, secondary, and subsidiary according to their importance as a source of information to the managing director as to how his business is going on as a whole. In the example given above the primary figure is the sales turnover of the company as a whole, and the secondary figures are the departmental results that make up the total sales turnover. The primary figures show only totals, and since the make-up of those totals is shown by the secondary figures, the latter are of definite importance from the management point of view. The subsidiary figures are the minor subdivisions which go to make up the departmental totals and are frequently of considerable value when it is desired to ascertain exactly why it is a department is doing badly. But the managing director would in all probability seldom have time to investigate the subsidiary figures and would only do so if recurring bad results called for some definite constructive action on his part.

With the departmental heads the importance of the figures steps down one, so to speak. The primary figure to a departmental head is the total turnover of his department—which is a secondary figure to the managing director. The sectional make-up of that turnover is the

secondary figure to the departmental head, and, therefore, of vital importance to him as an indication of what is going wrong in his department. The subsidiary figure as far as the departmental head is concerned might in certain cases consist of a still finer subdivision of each section.

It cannot be repeated too often that the purpose of control is to give aid towards successful results in the management of the business and not merely to supply an academic survey of the statistics. In the same way as the administrative duties of a managing director and a departmental head are quite definite and distinct, so their approach to the results of their work should be of a different nature. If the managing director were to go down into a department of his concern and proceed to give direct orders and to make changes in the organization he would be thought to be acting in a very unwise and injudicious manner; no experienced managing director, as a matter of fact, would ever think of doing such a thing. His outlook as far as the results of his company are concerned should be of a similar nature—he should concern himself only with the results that affect him and his policy, and leave the detail figures to be handled by the departmental manager in whose hands the responsibility for the department is placed.

The normal statement mentioned above (Fig. 4) encourages the managing director to take notice of detailed results which are not really his concern, by placing them at the head of the sheet and so inducing him to waste his time in considering the secondary results. It is not suggested, naturally, that the managing director should in any way limit his inquiries and investigations when he notices that his primary or secondary trends are beginning to go in the wrong direction. Obviously it is of the utmost

importance that he should investigate this movement and comb out his results to the extent that may be necessary in order that he may establish which particular section is causing the trouble. And such investigations only being carried out where troubles are being experienced lends additional emphasis to the inquiry.

The study of the primary and secondary trends alone provides a definite safeguard against anything beginning to go wrong without the managing director knowing it. It is true that there may be hidden in one of the rising trends an unprofitable section which is falling off in orders (or, if profits are under consideration, is losing money), and yet is being carried by the remaining more successful items in the section. The department as a whole is improving and, therefore, no danger to the company is involved; the only point is that if the faulty section could be eliminated the department would be doing even better.

This state of affairs can be met by the managing director making a periodic survey of the subsidiary trends whenever he can find time to do so. As long as the trends are being properly kept by the various departmental heads they are available for inspection at any time, and since the managing director is bound to come into contact very frequently with his departmental heads, the inspection of the sectional trends can be carried out at one of these meetings when the state of the department as a whole is being discussed.

The managing director is naturally at liberty to go as deeply as he pleases into the detail facts and figures of his concern. The main point is that he should make such investigations in their proper sequence, and not begin with minor details. If he does this, there is a danger that he may become involved in too much detail, and overlook the

primary facts relating to his business as a whole. Many managing directors very rightly take pleasure in reviewing detail results, and such results can be drawn up, as a general rule, in a concise manner that will give what is required. But a quick survey of current monthly or weekly results or percentages is seldom of constructive management value, and where such details are desired by the chief, trends should always be kept to show him how things are going.

In the case of the small "one-man" business which forms so large a proportion of our national industrial activity the survey of the detail trends is doubly important. The chief will not have departmental managers to whom he can entrust a considerable portion of the responsibility for the success of his business. It all rests on his own shoulders and he must, therefore, know clearly what is going on. On the other hand, this very fact of personal responsibility keeps him in intimate contact with all phases of his business, and he will probably know, without being told, which sections are doing better and which are doing badly. But the trend curves of these activities, which only require a few minutes each week or month on the part of one of his office staff to make up, will straighten out his impressions and give him the true facts of the case upon which he can base his future actions.

In the development of a control system, therefore, four main objects must be kept perpetually in view—

(a) The isolating of all vital facts connected with the welfare of the concern, so that nothing of importance can occur without attention being drawn to it.

(b) The assessment of the relative value of these facts to the managing director for control purposes.

(c) The illustration of those facts both in their current monthly and their trend results by simple line

charts which provide an instantaneous picture of the position.

(d) The reduction of the whole to dimensions which can be clearly understood by the managing director in the course of not more than half an hour, no matter what the size or complication of the concern may be.

Those accustomed to existing methods will probably feel that the above four conditions form a very desirable, but unattainable, ideal. It is hoped to show, however, that in the system set out in these pages that result has been attained as far as the methods go. In so far as any ideal can be attainable, this system, if properly handled in a reasonably intelligent way, will give the managing director that real grasp of the movement of his concern which he has the right to demand.

## CHAPTER IV

### HOW A CONTROL IS BUILT UP

To describe on paper the handling of statistics in a clear and simple fashion is always difficult, and is apt to become wearisome to the reader who is trying to follow the various steps. But since it may be easier to explain the detail matters arising from the particular method of control put forward here if the reader be shown in general terms how it is built up and the power that can be obtained over the conduct of the business through it, the author proposes to set out the method adopted when it is desired to analyse the position of a company, investigate the causes of any difficulties, and by suitable action guide it back to a sound condition.

If the reader, therefore, will accept for the time being the phraseology used and patiently follow the example through to the conclusion, there will be found in the later pages the detailed explanations of the terms employed.

The X.Y.Z. Co., a small engineering concern marketing a speciality used in connection with motor cars, has shown a loss for the year of £1,144 on a total sales turnover of something over £8,000. The managing director, Mr. Robinson, is the largest shareholder in the business, which is a private company; the remaining shareholders are all personal friends of the managing director.

The loss on the year's working has been due very largely to the fact that the managing director anticipated a considerable demand in certain directions for his goods, and, therefore, increased his sales organization and worked up a large stock ready for immediate delivery. Circumstances over which he had no control, however, prevented these



hopes from being realized, and at the end of the year the company was left with the goods in stock, entailing the locking up of what was to them a considerable amount of money.

This led to financial difficulties, since the bank was reluctant to increase the overdraft, and Mr. Robinson approached a friend with the suggestion that he should bring in £1,000 more working capital in order to tide over the difficult period. The friend, whilst fully appreciating Mr. Robinson's sterling qualities of energy, enthusiasm, salesmanship, and so forth, and quite aware of the fact that the goods sold were of excellent quality and provided for a definite need, was not disposed to put up his money until some clear statement of the position could be provided for him. The money once taken into the business would be difficult to recover at short notice, and the prospective investor wished to see an adequate return as well as safety for his investment.

Mr. Robinson, therefore, called upon Mr. Thomas, a consultant in such matters, and laid the facts of the case before him. His profit and loss account and balance sheet were drawn up in the manner usual with such concerns. They are shown in Figs. 6 and 7.

After explaining the purpose of his call and the request of the prospective investor for some statement that would show the working prospects of his company, Mr. Robinson, the managing director, and Mr. Thomas, the consultant, proceed to discuss the items shown in the profit and loss account. Their dialogue would run something on the following lines—

Mr. T.: "Before we can straighten out these figures, Mr. Robinson, I shall have to ask you a number of questions. We must get the different expenditures into their correct categories, and I expect that your accountant will have combined a certain number of them in

the customary manner. These we shall have to split apart."

Mr. R.: "I thought that you might want to ask me questions of that nature, so I have brought a file of detail

X.Y.Z. COMPANY  
TRADING AND PROFIT AND LOSS ACCOUNT  
FOR THE YEAR ENDING 31ST DECEMBER, 1936<sup>1</sup>

To Opening Stocks . . . . .	£ 2,745	By Sales . . . . .	£ 8,053
„ Wages . . . . .	1,634	„ Closing Stocks . . . . .	4,362
„ Purchases . . . . .	4,188		
„ Maintenance . . . . .	18		
„ Commissions . . . . .	30		
„ Car Maintenance . . . . .	87		
„ Stationery . . . . .	62		
„ Advertising . . . . .	262		
„ Carriage and Cases . . . . .	137		
„ Electric Power . . . . .	122		
„ Electric Light . . . . .	5		
„ Gas . . . . .	13		
„ Water . . . . .	12		
„ National Insurance . . . . .	80		
„ Coal and Coke . . . . .	10		
„ Bank Charges . . . . .	275		
„ Rates . . . . .	16		
„ Discounts . . . . .	341		
„ Income Tax . . . . .	22		
„ General Expenses . . . . .	30		
„ Insurance . . . . .	27		
„ Travelling . . . . .	249		
„ Postage . . . . .	142		
„ Salaries . . . . .	1,990		
„ Drawing Office . . . . .	3		
„ Repairs to Property . . . . .	20		
„ London Office . . . . .	253		
„ Show Expenses in Ad- vance . . . . .	169		
„ Bad Debts . . . . .	15		
„ Legal Charges . . . . .	32		
„ Audit Fees . . . . .	23		
„ Depreciation . . . . .	170		
„ Expenditure on Experi- ments . . . . .	247		
„ Rent of Closed Ware- house . . . . .	130	„ Loss . . . . .	1,144
	<u>£13,559</u>		<u>£13,559</u>

FIG. 6

<sup>1</sup> See Note in Preface to Fourth Edition.

BALANCE SHEET AS AT 31ST DECEMBER, 1936

Capital—Authorized:	£	
10,000 6% Cum. Pref. Shares of £1 each . . . . .	£10,000	
10,000 Ordinary Shares of £1 each . . . . .	10,000	
	<u>£20,000</u>	
Issued—		
8,500 6% Cum Part. Pref. Shares of £1 each	£8,500	
5,393 Ordinary Shares of £1 each . . . . .	5,393	
	<u>13,893</u>	
Reserve Account . . . . .	1,010	
Bank Overdraft . . . . .	1,576	
Sundry Creditors . . . . .	3,320	
	<u>5,906</u>	
		£8,001
		£2,273
		97
		<u>2,176</u>
		533
		54
		<u>479</u>
		206
		19
		<u>187</u>
		250
		4,362
		1,642
		49
		<u>1,509</u>
		1,144
		<u>2,653</u>
		£19,799

**FIG. 7**

figures with me, and I think that I shall be able to give you anything that you want to know."

Mr. T.: "Good. To begin with, is the figure you show for your sales turnover the gross or the net one?"

Mr. R.: "The sales turnover given here of £8,053 is the net revenue that we expect to receive from our customers, with all discounts taken off."

Mr. T.: "In that case we can take the next item, which is the expenditure on direct material. I see that you have an item of £4,188 for 'purchases.' That might mean anything. Are there any purchases in this other than the material which becomes a tangible part of the completed product?"

Mr. R.: "No. What is termed here 'purchases' is only the direct material used on the job."

Mr. T.: "That simplifies matters a good deal. I frequently find that the accountant includes in the item of purchases anything which has been bought outside, and where this has been done it is necessary to sort out the direct from the indirect material—which is not always easy. However, in your case we shall have no difficulty there.

"Direct labour comes next. You have an item in your accounts for 'Wages' of £1,634, but I do not see any entry for factory supervision or individuals like storekeepers, draughtsmen, or general labouring. It looks to me, therefore, as if all your wages have been lumped together."

Mr. R.: "Yes. I am afraid that that is what has been done. However, I have the make-up of that 'Wages' item here, and I think we can split it up without much difficulty. If you will give me a few minutes I will tell you how the total is composed . . . I see that it is made up of £1,031 direct labour, £275 for supervision, £125 for storekeeping, £145 for drawing office, and £58 for general labouring."

Mr. T.: "Now we come to the factory oncost, and here we shall probably have a number of items in which a proportion must be charged to the factory and a proportion to the company as a whole.

"The direct wages and material constitute the prime cost expenditure, and it now remains for us to divide all the other items in your profit and loss account into their proper categories, as follows—

- "1. Factory oncost.
- "2. Exceptional trading expenses.
- "3. Company overheads.
- "4. Fixed charges.
- "5. Special charges.

"Factory oncost is again subdivided into indirect material, indirect labour, general charges, and standing charges, and the company overheads are also subdivided into selling charges, general charges and standing charges. In this way we get the various expenditures into their correct compartments, and can see more clearly what is going on."

Mr. Robinson and Mr. Thomas then take each item of expense shown on the profit and loss account in turn, and discuss into which category of expenditure it should be placed. Several of the items have to be split; for instance, the £80 charged for National Insurance is allocated as £55 to factory oncost general charges, £12 to company overhead selling expenses, and £13 to company overhead general charges. The item of £1,990 for salaries was charged as £580 to factory oncost general charges, £500 to company overhead selling expenses, and £910 to company overhead general charges—this last figure being again split up into £132 for directors' fees and £778 for office salaries. In this manner each item was dealt with individually, and the result is shown in Figs. 8 and 8a.

EXPENDITURE ANALYSIS (1)  
YEAR ENDING 31ST DECEMBER, 1936

	£	£
<b>PRIME COST</b>		
A. Direct Material . . . . .		4,188
B. Direct Labour . . . . .		1,031
<b>TOTAL PRIME COST . . . . .</b>		<b>£5,219</b>
<b>FACTORY ONCOST</b>		
<b>A. Indirect Material—</b>		
1. Electric Power . . . . .	122	
2. Electric Light . . . . .	2	
3. Gas . . . . .	13	
4. Water . . . . .	12	
5. Coal and Coke . . . . .	10	
6. Stationery . . . . .	16	
7. Drawing Office Materials . . . . .	3	
8. Maintenance . . . . .	18	
9. Packing Cases . . . . .	67	
<b>TOTAL INDIRECT MATERIAL . . . . .</b>		<b>263</b>
<b>B. Indirect Labour—</b>		
1. Supervision . . . . .	275	
2. Storekeeping . . . . .	125	
3. Drawing Office . . . . .	145	
4. Miscellaneous . . . . .	58	
<b>TOTAL INDIRECT LABOUR . . . . .</b>		<b>603</b>
<b>C. General Charges—</b>		
1. Management Salaries . . . . .	580	
2. National Insurance . . . . .	55	
3. Postage and Telephones . . . . .	71	
4. Repairs and Renewals . . . . .	20	
5. Carriage . . . . .	70	
<b>TOTAL GENERAL CHARGES . . . . .</b>		<b>796</b>
<b>D. Standing Charges—</b>		
1. Rent, Rates and Taxes . . . . .	14	
2. Insurance . . . . .	25	
3. Depreciation—Plant and Machinery . . . . .	97	
4. Depreciation—Jigs and Special Tools . . . . .	54	
<b>TOTAL STANDING CHARGES . . . . .</b>		<b>190</b>
<b>TOTAL FACTORY ONCOST . . . . .</b>		<b>£1,852</b>

FIG. 8

**EXPENDITURE ANALYSIS (2)**  
**YEAR ENDING 31ST DECEMBER, 1936**

	£	£
<b>EXCEPTIONAL TRADING EXPENSES</b>		
1. Show Expenses in Advance . . . . .	169	
2. Expenditure on Experiments . . . . .	247	
TOTAL . . . . .	<u>          </u>	416
<b>COMPANY OVERHEADS</b>		
<b>A. Selling Expenses—</b>		
1. Salaries . . . . .	500	
2. London Office . . . . .	253	
3. Commissions . . . . .	30	
4. Advertising . . . . .	262	
5. Discounts . . . . .	341	
6. Travelling . . . . .	187	
7. Car Maintenance . . . . .	58	
8. Stationery . . . . .	27	
9. Postage and Telephones . . . . .	38	
10. National Insurance . . . . .	12	
TOTAL SELLING EXPENSES . . . . .	<u>          </u>	1,708
<b>B. General Charges—</b>		
1. Office Salaries . . . . .	778	
2. Directors' Fees . . . . .	132	
3. National Insurance . . . . .	13	
4. Travelling . . . . .	62	
5. Car Maintenance . . . . .	29	
6. Postage and Telephones . . . . .	33	
7. Stationery . . . . .	19	
8. Electric Light . . . . .	3	
9. Miscellaneous Expenses . . . . .	30	
10. Bank Charges . . . . .	275	
11. Bad Debts . . . . .	15	
12. Legal Charges . . . . .	32	
13. Audit Fees . . . . .	23	
TOTAL GENERAL CHARGES . . . . .	<u>          </u>	1,444
<b>C. Standing Charges—</b>		
1. Rates and Taxes . . . . .	2	
2. Insurance . . . . .	2	
3. Depreciation on Furniture . . . . .	19	
TOTAL STANDING CHARGES . . . . .	<u>          </u>	23
TOTAL COMPANY OVERHEADS . . . . .		<u>          </u> 3,175
<b>SPECIAL CHARGES</b>		
1. Income Tax . . . . .	22	
2. Rent of Closed Warehouse . . . . .	130	
TOTAL SPECIAL CHARGES . . . . .	<u>          </u>	152

FIG. 8a

Mr. T.: "Now, Mr. Robinson, we can proceed to set out your control statement of account, starting with the sales turnover and deducting from this the cost of manufacture in order to arrive at the factory surplus.

"From this factory surplus, as you will see, the remaining expenses are deducted as they arise in the business, so that we reach the bottom of the page with your loss for the year of £1,144." (The statement is shown on page 47.)

Mr. R.: "This certainly seems to make the position a little more easy to understand."

Mr. T.: "If you study the statement, the first thing you will notice is that your cost of goods sold or working cost is 67·7 per cent of the sales turnover. That appears to me to be a very reasonable figure, since it leaves you a factory surplus of 32·3 per cent from which to defray your residual charges. That ought to be ample for a business of your size, but you will see that your company overheads amount to £3,175 or 39·4 per cent.

"The first impression that one gains from your business, therefore, is that the manufacturing side is satisfactory, but that the company overheads are top-heavy for the size of your concern."

Mr. R.: "I suppose they are. I have not seen the condition so clearly stated before, but it certainly seems wrong that the company overheads should be 39·4 per cent of the sales turnover. As I think I told you, I was making preparations for a considerable increase in my sales turnover which unfortunately did not materialize, but if it had done so my percentage of selling expenses would not have been so high.

"You know, Mr. Thomas, I am fully aware of the fact that I must increase the turnover of this business or we shall go down. I know that the market is there, and had my negotiations been successful we should have done very much better than we did; as it is I have not only



STATEMENT OF ACCOUNT  
YEAR ENDING 31ST DECEMBER, 1936

Item		£	£	£	Per-centage of Sales
1.	SALES TURNOVER . . .			8,053	100·0
	<b>COST OF MANUFACTURE</b>				
2.	Opening Stocks . . .		2,745		
3.	Direct Material . . .	4,188			
4.	Direct Labour . . .	1,031			
5.	Factory Oncost . . .	1,852	7,071		
6.	Sum . . .		9,816		
	<i>Deduct—</i>				
7.	Closing Stocks . . .		4,362		
8.	<b>COST OF GOODS SOLD . . .</b>			5,454	67·7
	<i>Representing—</i>				
9.	A FACTORY SURPLUS . . .			2,599	32·3
	<i>Deduct—</i>				
10.	Exceptional Trading Expenses			416	5·2
	<i>Representing—</i>				
11.	A GROSS TRADING PROFIT . . .			2,183	27·1
	<i>Deduct—</i>				
	<b>COMPANY OVERHEADS</b>				
12.	Selling Expenses . . .	1,708			
13.	General Charges . . .	1,444			
14.	Standing Charges . . .	23			
			3,175		39·4
15.	<b>FIXED CHARGES</b>				
	<i>Nil</i>		—		
	<i>Representing—</i>				
16.	A NET LOSS ON GOING CONCERN			3,175 992	-12·3
	<i>Add—</i>				
17.	Special Charges . . .			152	
	<i>Representing—</i>				
18.	A FINAL LOSS OF . . .			£1,144	

FIG. 8b

sunk all my working capital in stock that for the moment is on my hands, but I have paid out money in salaries and sales expenses which has so far brought me back very little. I am convinced, however, that if I can bring in this further thousand pounds it will give me the time to conclude my negotiations, get rid of my stock, and reap the benefits from the plans that I laid last year as to my future sales."

Mr. T.: "In that case, Mr. Robinson, your position may not be as serious as it looks. Let us see what we can do to make a forecast for next year's results which will be one that you can confidently undertake to fulfil, and to which your friend can hold you if he brings in his money.

"The first thing we must do is to obtain our true cost of production after adjusting for the rise in stocks. You can see that your direct material, direct labour, and factory oncost recorded for the year resulted in an output of goods which sold for £8,053, and an output of goods which were taken into stock at a working cost value of £1,617. The amounts that we have set down in the statement of account for direct material, direct labour, and factory oncost were used to prepare the goods that were put into stock as well as to prepare the goods that were sold. If, therefore, the true direct material and direct labour percentages to the sales turnover are to be ascertained, the equivalent sales value of the goods that have gone into stock must be added to the actual sales turnover, thereby producing the total sales value of the production for the period.

"From the statement of account we know that £5,454 cost expenditure produced a sales turnover of £8,053. From this we can assume that the £1,617 of goods which went into stock would have produced £2,380 in sales value.

"Perhaps this little calculation can be shown more

clearly in the following manner, using a slide-rule to get a rapid and approximate result :—

Working cost of Sales Turnover . . . . .	£5,454
Resulting in—	
SALES TURNOVER . . . . .	£8,053
Ratio of Sales to Cost . . . . .	147·4
Working Cost of Increase in Stocks . . . . .	£1,617
Sales Equivalent of Increase in Stock, based on above Percentage . . . . .	£2,380
Hence, Total Sales Value of Production . . . . .	£10,433

We then have our working cost percentages as follows—

	£	%
Direct Material . . . . .	4,188	40·0
Direct Labour . . . . .	1,031	9·9
Factory Oncost . . . . .	1,852	17·8
Working Cost of Production . . . . .	7,071	67·7
Factory Surplus on Production . . . . .	3,362	32·3
Sales Value of Production . . . . .	£10,433	100·0%

FIG. 9

“Now, Mr. Robinson, taking into consideration what you have been telling me about your sales plans for the coming year, what do you think your total figure is likely to be?”

Mr. R.: “I admit that my expectations last year were far from justified, but my negotiations and arrangements are now in a very much more satisfactory condition, and considering all the factors in the situation, I think that I could safely undertake that we shall do a turnover of £16,000 next year.”

Mr. T.: “Are you not being a little too optimistic? That means doubling the turnover that you obtained during last year. Can you possibly expand so quickly?”

Mr. R.: “But it does not mean that I should have to double my manufacturing output. As you know, I have over £4,000 of good material in stock, and I must liquidate that as soon as I possibly can. The market is there, and

my sales arrangements are such that I am quite confident that I can get rid of at least £3,000 worth of my stocks during the coming year. Even then I shall be left with over £1,000 worth, which is really too high."

Mr. T.: "If you really are prepared to stand by that statement and justify yourself to your friend if he invests his money, let us see what such a figure would mean from the manufacturing point of view. You propose to obtain a sales turnover of £16,000, of which £3,000 would come from stock and the remainder would, therefore, be goods manufactured during the year. We can now set out our working figures, this time deducting the sales value of the stock from the sales turnover, instead of adding it in, in order to arrive at the working cost figure for the manufactured turnover. In this manner we arrive at the following schedules.

TOTAL SALES VALUE . . . . .	£	16,000
Stock Decrease in Working Cost Value . . . . .	£3,000	
Ratio of Sales to Cost (last year) . . . . .	147·4%	
Sales Value of Stock Decrease . . . . .		4,410
Hence, Sales Value of Production for Year . . . . .		11,590
Again, Ratio of Sales to Cost . . . . .	147·4%	
Hence, Working Cost of Production for Year . . . . .		7,850

FIG. 10

"Taking our previous percentage figures for direct material, labour and factory oncost, we get—

WORKING COST PERCENTAGES	£	%
Direct Material . . . . .	4,640	40·0
Direct Labour . . . . .	1,148	9·9
Factory Oncost . . . . .	2,062	17·8
Working Cost of Production . . . . .	7,850	67·7
Factory Surplus on Production . . . . .	3,740	32·3
SALES VALUE OF PRODUCTION . . . . .	£11,590	100·0%

FIG. 11

"The factory surplus statement will then read as follows—

	£	£	£
SALES TURNOVER . . . . .			16,000
COST OF MANUFACTURE			
Opening Stocks . . . . .	4,362		
Direct Material . . . . .	4,640		
Direct Labour . . . . .	1,148		
Factory Oncost . . . . .	2,062		
		12,212	
<i>Deduct—</i>			
Closing Stocks . . . . .		1,362	
COST OF GOODS SOLD . . . .			10,850
FACTORY SURPLUS . . . . .			<u>£5,150</u>

FIG. 12

Mr. T.: "Since the percentage that we have adopted for direct material and direct labour is the same as last year, I do not doubt that you will be able to achieve the result that we have set down. But the factory oncost, as you know, does not vary directly with the sales turnover, and if you expended £1,852 in factory oncost last year in producing an output with a total sales value of £10,433, we have obviously been a little too liberal in allowing a sum of £2,062 to produce a total sales value of £11,590, which is the sum which must be realized on actual output during the year if the total turnover of £16,000 is to be reached. You certainly have slightly more work to do, but you would not have an 11 per cent increase of factory oncost for an 11 per cent increase of work. What do you consider your factory oncost should be on a turnover of £11,590?"

Mr. R.: "My factory oncosts are already cut to the bone, and I do not see where I can make any reductions; but I think we might limit the figure for the year to £2,000. We will certainly try to reduce them, but frankly I do not see where the saving is to be effected."

Mr. T.: "In that case our working cost percentage will

change, since decreasing the factory oncost figure will increase the factory surplus, our sales turnover being fixed.

"Our working cost percentages will, therefore, now stand as follows (Fig. 13), and we will take the opportunity to put the items in round figures, since we cannot aspire to accuracy in these rough calculations.

WORKING COST PERCENTAGES	£	%
Direct Material . . . . .	4,650	40.0
Direct Labour . . . . .	1,150	9.9
Factory Oncost . . . . .	2,000	17.3
Working Cost of Production . . . . .	7,800	67.2
Factory Surplus on Production . . . . .	3,800	32.8
Sales Value of Production . . . . .	<u>£11,600</u>	<u>100.0%</u>

FIG. 13

"Taking these three figures for material, labour and factory oncost, we can now build up our factory surplus statement, based on a sales turnover of £16,000, and this will read as follows—

Item		£	£	Percentage on Sales
1	SALES TURNOVER . . . . .		16,000	100.0
	COST OF MANUFACTURE			
2	Opening Stocks . . £4,362			
3	Direct Material . . 4,650			
4	Direct Labour . . 1,150			
5	Factory Oncost . . 2,000			
6	Sum . . . . .	12,162		
	Deduct—			
7	Closing Stocks . . . . .	1,362		
8	COST OF GOODS SOLD . . . . .		10,800	67.5
9	FACTORY SURPLUS . . . . .		<u>£5,200</u>	<u>32.5%</u>

FIG. 14

"It now remains for us to go through the remaining expenditures, Mr. Robinson, and for you to estimate what they are likely to be next year. I see that last year you had exceptional trading expenses of £416."

Mr. R.: "That represents the expense of certain experiments that I had to carry out in connection with two or three of the new models. The experiments are complete, however, and we shall not have to spend anything more as far as they are concerned."

"If you tell me, however, that I must put into these exceptional trading expenses any unexpected or unusual item, perhaps it would be as well to put down £100 to be on the safe side."

Mr. T.: "Good. At any rate we can save something there. Now let us consider the company overheads. You show selling expenses amounting to £1,708, and I think you said that these were on the high side. If you are to get rid of the top-heavy appearance of your statement of account, you cannot afford to allow much more for sales expenses, even though the turnover has been doubled."

Mr. R.: "I quite agree, but I shall certainly have to make an addition to last year's figure. I think, however, that we should be safe in putting it down as £2,000."

Mr. T.: "General charges are standing at £1,444, and the increase of turnover should not make much difference to these. If you can sell off your stock and turn it into cash, your bank charges should be reduced, and there is no reason why any of the other salaries or fees should increase."

Mr. R.: "As a matter of fact, I think I can make a small reduction here. One of our senior clerks, who was drawing £6 a week, has just left owing to personal reasons. He had been with us for a long time, but the work that he had been doing has been much simplified lately, and I think I can spread it over the rest of the staff by making

certain rearrangements. If I can do this, it will not be necessary to replace him, and we shall therefore effect a saving there. As you say, the bank charges should be reduced, and I think that we might take the general charges for next year at £1,000."

Mr. T.: "The standing charges only come to £23, so that our total company overheads for next year will amount on this estimate to £3,023. You have no fixed charges for debenture or loan interest at present, so they do not arise. Can nothing be done with regard to the special charges?"

Mr. R.: "I have some hopes of being able to let the warehouse that is at the present time costing us £130 per annum, but I should not like to promise anything at the moment, and I think we should be wise to leave that figure in. If we can get rid of the place, that is so much up our sleeve."

Mr. T.: "Very well, Mr. Robinson, we can now proceed to set out your full statement of account for next year, based on a sales turnover of £16,000. (As given in Fig. 15.)"

Mr. T.: "It appears, therefore, that you ought to make a profit of £1,947, which is just over 12 per cent on your turnover of £16,000. That seems very reasonable, and if you can, by the introduction of this extra £1,000 to help you through your temporary difficulty, double your turnover and turn the loss of £1,144 into a profit of £1,947, you will have cause for congratulation. I think your friend should be satisfied with this, providing you are able to give him adequate evidence that you really can double your turnover—it seems to me that for that assurance he must depend upon the explanations and information that only you can give him.

"You are going to have a fairly quiet year in your factory, but a very busy year in your sales department.



The actual manufacturing activity will be little more than what it was last year, as you only expect to put out £1,150 in direct labour instead of £1,031. The liquidation of your stock will help your cash position considerably, and it would be interesting to draw up a prospective balance

**ESTIMATED STATEMENT OF ACCOUNT**  
**FOR YEAR 1937**

Item		£	£	Percent- age of Sales
1	SALES TURNOVER . . . .		16,000	100.0
	<b>COST OF MANUFACTURE</b>			
2	Opening Stocks . . £4,362			
3	Direct Material . . 4,650			
4	Direct Labour . . 1,150			
5	Factory Oncost . . 2,000			
6	Sum . . . .	12,162		
	<i>Deduct—</i>			
7	Closing Stocks . . . .	1,362		
8	<b>COST OF GOODS SOLD</b>		10,800	67.5
9	<b>FACTORY SURPLUS . .</b>		5,200	32.5
	<i>Deduct—</i>			
10	Exceptional Trading Expenses <sup>s</sup>		100	.6
11	<b>GROSS TRADING PROFIT .</b>		5,100	31.9
	<i>Deduct—</i>			
	<b>COMPANY OVERHEADS</b>			
12	Selling Expenses . £2,000			
13	General Charges . 1,000			
14	Standing Charges . 23			
15	Fixed Charges . . . .	3,023 Nil	3,023	18.9
16	<b>NET TRADING PROFIT</b>		2,077	13.0
	<i>Deduct—</i>			
17	Special Charges . . . .		130	.8
18	<b>FINAL DIVISIBLE PROFIT</b>		1,947	12.2

FIG. 15

sheet showing your position at the end of next year. You say that your friend is proposing to bring in £1,000. What are you going to give him for that?"

Mr. R.: "He is prepared to take preference shares at par, and as we have a number unissued, there is no difficulty as far as that is concerned."

Mr. T.: "Very well, then, at the end of the year your balance sheet ought to stand thus." (See Fig. 16.)

"You have now calculated your budget figures for each form of expenditure for the coming year, and you know that if you can reach the sales turnover of £16,000 that you have set and at the same time keep your expenses within the figures that you have worked out, you will make close on £2,000 profit. It is, of course, impossible to foresee everything, but even if unexpected difficulties crop up, you will be able to deal with them much more clearly and definitely once you are watching your figures.

"Your accountant, now that we have sorted out all the different categories of expense, can give you your monthly results under this arrangement, and from these you will be able to see whether you are keeping within the safe lines. If you begin to overstep them your attention can be immediately drawn to this, and it gives you an opportunity to do something about it. In other words, you can control what is happening in your business. You have divided up your income and your expenses into their logical categories; and as the months pass you can investigate whichever category is going over the mark, or if they are all below their marks you can see whether further reductions can be obtained.

"The first point—and in your case perhaps the most important point—that you will need to watch is the sales turnover. Make a moving annual total for at least a year back; make a simple line chart of the result, and that will enable you to control whether your sales turnover is

# ESTIMATED STATEMENT OF ASSETS AND LIABILITIES AS AT 31ST DECEMBER, 1937

## Liabilities and Net Worth

CURRENT LIABILITIES	
Sundry Creditors . . . . .	2,320
TOTAL CURRENT LIABILITIES . . . . .	2,320
NET WORKING CAPITAL . . . . .	4,225
Ratio of Current Assets to Current Liabilities . . . . .	28.2%

## LONG-TERM LIABILITIES

Nil

## Assets

CURRENT ASSETS		%
Cash in Hand and at Bank . . . . .	2,327	13.2
Sundry Debtors . . . . .	2,036	13.2
Stocks . . . . .	2,302	13.2
TOTAL CURRENT ASSETS . . . . .	6,545	37.3
FIXED ASSETS		
Land and Buildings (as valued) . . . . .	8,001	45.7
Plant and Machinery at 31/12/36 . . . . .	2,089	12.0
Less Depreciation . . . . .	479	2.6
Jigs and Tools at 31/12/36 . . . . .	454	2.6
Less Depreciation . . . . .	178	1.0
Furniture at 31/12/36 . . . . .	10,722	61.3
Less Depreciation . . . . .	250	1.4
TOTAL FIXED ASSETS . . . . .	17,517	100.0
INTANGIBLE ASSETS		
Goodwill . . . . .	17,517	100.0
TOTAL ASSETS . . . . .		

FIG. 16

advancing as you desire towards the £16,000 that you have set yourself.

“Let the state of your order book be returned to you at the end of every month and make another simple curve, so as to record whether the orders ahead of you are sufficient to keep the place at full activity. In your business, with a turnover aiming at £16,000 a year, you should have an order book of not less than £1,250. Draw a red line across the chart at this point and see that the order book actual figures are round about the red ‘normal’ line.

“To keep your business going you require a steady supply of cash; therefore keep a simple line chart of your invoices issued. If your terms are thirty days, you will find that the cash received will correspond to the invoices issued with approximately a lag of a month.

“In this way you can watch how your affairs are moving, and, in a word, control the business side of your undertaking.

“The trading side is the one we have just discussed at length, and your statement of account will give you each month the results of your trading.

“There remains only the financial side to be considered.

“Two simple checks will be enough here, and those are, firstly, to make sure that the liquid assets of the business are at least equal to the current liabilities; and, secondly, that the current assets of the business are twice at least the current liabilities. Such a position is by no means always possible, but the extra money that you will get in and the liquidation of the stocks should put you in a very healthy condition, and if you can reach the sales turnover that you so confidently anticipate, a successful future should be assured.

“But there is one final thing that I should like to recommend to your attention, Mr. Robinson. When you get these results returned to you monthly, use them as a

means of investigation, in order to try to keep the efficiency of your business continually rising. As your monthly returns come in regularly you will find much that will interest you, and the variations in the figures will no doubt often call for investigation on your part. As far as possible try to set your salesmen and your works a quota each month, and then discuss with them at the end of every month the reasons why those quotas have not been reached or compliment them if they have been reached or even surpassed. Make it clear to your accountant that you are not asking for any new method of accountancy, but are only building up on his results a structure that helps you to see what is going on. In this way you will be able to get your staff to give you really constructive help in steering your concern towards success."

Mr. R.: "I feel as if you are asking me to put in a lot of time studying detail, Mr. Thomas. I am a very busy man; I have to handle the whole of the selling side personally, and I really have very little time to sit in my office and study charts and statements."

Mr. T.: "Come, Mr. Robinson, you must not adopt that short-sighted attitude. No doubt the captain of a ship much prefers the general handling of his ship to the time spent in the chart room, but if he did not work out his position and apply himself to his navigation calculations, he could never steer a safe course. I am asking you to spend what amounts to about ten minutes a day, on an average, in establishing your position and watching your course—and you grudge that as being time wasted in studying details. If you had studied details such as these a little more carefully last year, you would not now be in your present position. Your losses each month, your climbing stocks, your top-heavy overheads—all these items which have got you into trouble would have been forcing themselves on to your attention, and you would

not have let things get so far wrong before you took steps to improve matters. If you carry the managing director's responsibility in this company, you must do the managing director's job first, and the sales manager's job afterwards."

Mr. R.: "What do you call the managing director's job?"

Mr. T.: "To watch the results of his concern as a whole, and to throw his personal energies into whichever function is showing itself to be hampering the success of the undertaking. Production, selling, administration—the managing director must be able to give assistance, advice, and help in whichever direction they are shown to be required by the charts and schedules that he studies, or by his inside knowledge of affairs."

Mr. R.: "It sounds a difficult thing to do; you think these charts and schedules you have mentioned will give me the help I require?"

Mr. T.: "I am sure they will, Mr. Robinson, if you will go half-way to meet them, and do your best to get all the help out of them you can. I have seen businesses in the direst straits climb steadily back to safety by these means, and whilst in your own case no real difficulties should arise if your friend brings in the additional money, you are still in sight of trouble if you do not handle your business soundly. With your present net worth you ought to be making close on £2,000 per annum profit, and you will not achieve that without a struggle."

Mr. R.: "Well, at any rate you have given me a fresh viewpoint, Mr. Thomas, and I will see what I can do to follow out the method. I will let you know how we get on."

Mr. T.: "Do—I shall be interested to hear how it works out. And now suppose you lunch with me, and we can continue the discussion of any points that are not clear to you."

## CHAPTER V

### THE THEORY OF HIGHER CONTROL

HIGHER control can be defined as a monthly survey of the functional activities of a commercial undertaking, carried out from the business, technical, trading, and financial viewpoints, and based upon direct trend comparison between the position at the moment and the position at the last financial year. A diagram showing the framework of the system has been added as a frontispiece to this volume.

The information collected in this manner is laid before the chairman, the managing director, the board, or whoever requires it for controlling purposes, in the form of a standard set of board returns and two monthly reports with certain simple line charts.

The information put before the managing director must be made up partly of facts and partly of figures. The facts contained in the monthly reports should be as brief as possible, and only introduced in order to illustrate the figures. Broadly speaking, it may be said that higher control work consists of about 90 per cent statistics and 10 per cent explanatory facts, but all vital statistics being illustrated by simple line trend charts they are largely self-explanatory, and the written explanations are, therefore, reduced to this small proportion.

As stated in the definition above, the results of the concern are dealt with from the business, technical, trading, and financial viewpoints. Under one or another of these headings can be isolated everything that occurs in business, and, in fact, in every form of human endeavour. The professional man—let us say the doctor, for instance—has his business, technical, trading and financial

problems just the same as the manufacturing works and the departmental store or the group of collieries. It is under these headings, therefore, that the various activities of commercial life are segregated, and from that first segregation higher control starts.

Any form of management control must obviously be built up on some predetermined framework, otherwise it will not interlock effectively. Once the framework has been provided, the first step on the part of the manager who wishes to create a control structure on that framework must be to sort out his existing facts and figures, and begin to rearrange them so that they fit into the general fabric of the control proposed. The example of preliminary analysis given in the previous chapter has intentionally been made as simple as possible. Mr. Robinson's problem amounted merely to the preparation of a clear statement showing the profits anticipated under certain working conditions, so that a control could be subsequently built up. The analysis of the figures necessary to obtain this statement brought with it a discussion of each form of expenditure, and the fixing of a limit to that expenditure for the anticipated turnover. In other words, a definite management objective was set up, and Mr. Robinson, by taking advantage of the facilities offered by this method, could from that point onwards control the progress of his little business towards the planned objective.

All management should be carried on with some definite objective in view, and the main guiding objective of a managing director is to maintain in a sound and prosperous condition the undertaking of which he is the executive head. To do this, his undertaking must be profitable, in the sense that the income derived from the trading activity must exceed the expense necessary to carry on that activity. His first objective in establishing a control,



therefore, will be to decide what that margin, or profit, should be, considering the capital that is employed in the business.

The precise percentage of profit that can be considered normal for an industrial and therefore speculative enterprise has been the subject of some argument. Admittedly the percentage of profit should be higher than that obtained from the gilt-edged security, but beyond that point the return expected must depend to a considerable extent on the amount of risk involved in the investment. Knoepfel, in *Profit Engineering*, considers that a business should return from two to three times the gilt-edged rate as an average over a period of years. If the gilt-edged rate be taken, for the sake of argument, at 5 per cent, therefore, the net divisible profit (before appropriations for dividends, reserves, etc.) should range between 10 per cent and 15 per cent on the total capital employed over a normal period of the trade cycle.<sup>1</sup>

It may be taken, therefore, that a satisfactory aim for the managing director of the concern would be to make a net divisible profit of  $12\frac{1}{2}$  per cent on his total capital employed or net worth. Taking as an example a concern where the total net worth of the company amounts to £100,000, the managing director would aim at earning a net divisible profit of £12,500 for the year. This is the first step in control, in what might be called the programme stage of the proceedings.

Under certain industrial conditions this may appear to be a counsel of perfection, but the principle involved remains the same, whatever the circumstances of the case may be. The managing director of a concern that

<sup>1</sup> Mr. Hargreaves Parkinson, in his book *Scientific Investment*, says: "When industry is active, a company of average efficiency and average capitalization may be capable of earning an 'over-all' rate of, say, ten per cent on its total issued capital, with certain exceptions, such as British railways."

is passing through a period of difficulty will obviously not be able to programme for an adequate profit on his net worth. For him the installation of a control will mean a concentrated effort to stop losing money, and he will fix his goal for the coming year as a reduction in the loss, or what might perhaps be termed a negative profit. But whether he decides on an increased or decreased profit or a decreased or even increased (but controlled) loss as the goal towards which the activities of the company are to be directed during the coming financial year, some form of programme he must make, so that the control can be built up on it.

To return to the example begun above, the managing director establishes that £12,500 is a fair figure of profit at which to aim. Knowing the profit which he can reasonably expect to obtain on the goods that he sells, a simple calculation will establish the fact that to earn £12,500 of net divisible profit, after the payment of all expenses whatsoever, he will have to obtain a certain sales turnover—in this case, say, £125,000.

This brings us to the second step in the programme stage of control, and the survey of the position from the four viewpoints of control begins to make its appearance.

(a) From the business viewpoint, the necessary turnover required to obtain the desired profit has already been established.

(b) From the technical viewpoint the works manager will be called in to discuss whether the available shops, plant, equipment and labour are adequate to provide the output desired, or whether additions or modifications will be necessary.

(c) From the trading viewpoint, the managing director will now proceed to make out his statement of account, based on the sales pound make-up,<sup>1</sup> and so programme his

<sup>1</sup> See p. 162 *et seq.*

expenditure that the sum of £125,000 of sales turnover at the top of the statement ends up as a net divisible profit of £12,500, after the various items of expenditure have been deducted one by one. At this point it may be as well to remark that in the making of these control programmes it is usual to omit sundry income—unless it forms a considerable proportion of the profits of the concern—in order to keep it as a contingency reserve.

(d) From the financial viewpoint, the managing director makes a preliminary survey to ascertain that sufficient working capital is available to finance the necessary turnover already settled.

We have now come to the third step in the programme stage.

(a) From the business viewpoint, the necessary turnover is carefully split by products and by territories into quotas, so that the sales effort can be watched and encouraged.

(b) From the technical viewpoint any new plant and equipment required is placed on order, the local Employment Exchange is warned of probable labour requirements, programme dates are fixed for completion of experiments on new models, issue of working drawings and schedules, manufacture of jigs and special tools, etc. Purchasing Department is warned of probable material requirements, and the programme of works output drawn up.

(c) From the trading viewpoint, the cost of manufacture is split so that it can be seen whether the different products are yielding that percentage of profit upon which the estimate was based; and further, the various sections of overhead expenses are limited so that no unexpected payment of an excessive nature can upset the programme.

(d) From the financial viewpoint, the working capital

which was considered necessary to obtain the turnover is split into—

1. Cash ;
2. Sundry debtors ;
3. Stocks and work-in-progress ;

with limits set, so that the three sections can work normally together.

That concludes the programme stage in the installation of control, and from that point onwards the board returns and the monthly reports are used in order to watch that movements of the four sections are in the desired direction.

Last of all, and what is the whole *raison d'être* of the work, comes the action which has to be taken as arising from the results shown by the control.

(a) From the business viewpoint, the action will almost certainly be directed towards stimulating sales, or, in the case of manufacturing concerns, the orders received. This leads directly to every method, every policy and every scheme of the vast array of modern theories of sales promotion that are to be met with in the textbooks on the subject. Market research, consumer capacity, competitors' advantages, sales literature, advertising—there are to-day innumerable methods well known and certain by which the sales can be stimulated. This is not the place for a description of such methods—it is sufficient to point out here that if the sales trends are falling and the necessary turnover does not seem to be coming into sight, then the managing director must take action of some kind to see why the sales have fallen off and what can be done to stimulate them.

(b) From the technical viewpoint the action taken will be a continuous check-up as to whether each section of

the development and production departments is adhering to the limiting dates set. New machinery must be delivered by the expected dates (or extensions to the shops completed to time). Experiments must be energetically carried on, and success reached inside the period allowed (frequently a most difficult affair). Drawings and schedules must be coming out in their right sequence to permit of ordering material, and the design and manufacture of jigs and tools. New labour must be joining up, in time to be trained if necessary. All this movement needs perpetual watching, to see that nothing is falling behind in a manner that will wreck the general programme for the company laid down by the managing director on the instructions of the board.

(c) From the trading viewpoint, the action will probably be to investigate what steps can be taken to reduce costs of manufacture or excessive overheads. New processes, better machinery, a more modern manufacturing layout—here, again, it will always be found that if the existing situation be carefully investigated betterment of some kind will be obtainable without much difficulty. Overheads can be surveyed, jobs or offices combined, sometimes rates or insurances can be reduced, and so by skilful organization some of the burden on the product can be removed. Such investigations may take time, but there are few concerns in all probability who can say with truth that their overheads are carefully and periodically surveyed in order to make sure that existing expenses are irreducible.

(d) From the financial viewpoint, the action taken will be the obtaining of discounts by quicker payment of creditors, the acceleration of debt collection, the reduction of stock value in order to ensure quicker turnover of stock, thereby making acceptable a smaller profit on the turnover, and last, but not least, the consolidation of

goodwill between the company and the bank so that emergencies can be met without relations being strained.

Fig. 17 shows this method of analysis in a diagrammatic manner.

The state of affairs at the start having been established by the investigations mentioned above, and by the preparation of the statement of account, the managing director or the board can control the movement of events by watching the monthly returns and taking the necessary action in accordance with what they see is going on. Many influences and factors in the situation will be entirely outside control, but what is done inside the business to meet the fluctuating outside conditions will lie in the hands of the board. Knowing their own position gives them at any rate a much better chance of reaching success than when to the tangle of outside problems is added the further complication of vagueness and uncertainty as to what is going on inside the firm. It was to establish clearly and concisely what was happening inside the firm that the original research work was done in connection with the system set out here.

To this system the name of Higher Control has been given, to indicate that it has been worked out for the express purpose of providing the higher executives and the board with a proper control of the undertaking for which they are responsible.

The method does not entail any special staff or any intricate or special calculations to obtain the information required. In effect, it merely takes the ordinary figures which are to be found in every accountant's books, and the ordinary sales statistics which are almost invariably got out in every sales office, and presents them in a new form so as to give a complete picture instead of a disconnected series of schedules. Provided the company

# THE INSTALLATION OF HIGHER CONTROL

PROGRAMME STAGE FIRST STEP	Decide on Desired Profit, either (a) On Net Worth or (b) Reasonably Attainable			
	BUSINESS	TECHNICAL	TRADING	FINANCIAL
SECOND STEP	Fix turnover necessary to obtain desired profit	Decide whether manufacturing facilities are adequate	Limit main categories of expense, so that desired profit is available out of determined turnover	Ascertain that sufficient working capital is available to meet costs and expenses
	Split turnover by products and territories	Order new plant, fix programme dates for completion of experiments, issue of drawings, etc. Warn Purchasing and Personnel Depts	Split main categories of expense into component detail allocate to products to obtain true costs	Split working capital— (a) Minimum cash (b) Book debts (c) Stocks and w.i.p. permissible
WATCHING STAGE	WATCH Sales trends (viz upwards or downwards slope of monthly M A T)	Check progress of all development and production sections against programme dates fixed	WATCH (a) Main category expense trends (b) Sectional profit trends	WATCH (a) Liquid position (b) Stocks (ratio to Sales Trend)
	TAKE ACTION To increase sales	TAKE ACTION To produce the planned quality and quantity of goods, at the planned cost, and by the planned dates	TAKE ACTION To reduce expenditure	TAKE ACTION To ensure necessary cash is available
ACTION STAGE				

FIG 17

takes out its results monthly there is no reorganization or upheaval of any kind required, or any additions to staff, and the control can be put into a concern with no more labour than the extraction of the existing figures from the records and the working out of the necessary trends. After that, as the results come out month by month, an hour or two of simple addition and subtraction is all that is necessary, and the charts and reports can be made up. It is important to bear this point carefully in mind, as whenever any new method connected directly or indirectly with management is advocated, those before whom it is put always seem to visualize a sudden influx of more staff, a heavy increase in overheads, and universal disorganization at the start.

With this higher control work, however, no additional labour is laid upon the accounts department—provided adequate accounts and records have been kept previously—as the only difference will probably be some unimportant rearrangements of the figures that they already get out; and the preparation of the reports arising from the accountant's work is a matter of a few hours once a month, depending, of course, upon the size of the company. The actual cost, therefore, of working the control once it is installed may be said to be negligible.

It may be thought a matter of doubt as to how it is possible to suggest a universal form of control which can be adapted to any form of industrial enterprise, seeing how infinitely varied the activities of industry are. But every form of industry, as we have seen, possesses its business, technical, trading and financial problems, and the method by which these problems are isolated, defined, and watched month by month in actual fact varies only in detail. It is not suggested by the writer that it is possible to put forward a simple stereotyped set of forms which can be



applied universally. Any attempt to introduce the exact system used in one concern into another is always a failure, owing to the influence of the personal factor. But in higher control work the central guiding principle remains unaltered—the principle of finding out what the managing director ought to know month by month in the four sections, and presenting that knowledge to him in a simple manner. When that main idea is clear, the detail development of it becomes merely a task of patient searching so that no vital influence on the fortunes of the undertaking remains unwatched.

Later on in this book examples will be given of how the control approach varies in different industries. The fact that these variations and adjustments exist, however, only enhances the importance and value of this method. To be able to apply to all industries a guiding principle in control, and to be able to set about the detailed development of that principle in such a manner that it is immediately clear which subdivisions apply to a particular industry and which do not, is surely an advance in the technique of management that can be of inestimable value to industry as a whole, and, above all, to those upon whose shoulders fall the responsibility of sustaining those industries in a state of prosperity.

Before proceeding to a detailed discussion of the various points arising in connection with the ascertainment of the business, technical, trading and financial positions, it may be as well to make some mention of budgetary control, which has been in use for some time, and was the nearest approach to an effective form of direction previously reached. This method is by now fairly well known, and there are a number of admirable books to be obtained which deal with its principles. In effect it amounts to the analysis of expected income and permissible expenditure

on production, sales, and administration, the whole linked together by a financial budget based upon an estimated profit and loss account and balance sheet.

Budgetary control is the outcome of a determination to look upon the profits of an undertaking as a definite sum which should be obtained from the total capital employed in the business, rather than whatever may be left over after total expenditure has been deducted from total income. It is, as one might say, based upon staff work at headquarters rather than fighting in the front line. The firm has so much capital invested in the business; so much profit should be earned on it; so much turnover will be required to make so much profit; the sales department therefore is responsible for obtaining this budgeted turnover, and all items of the firm's expenditure are limited individually to sums that will permit the desired profit to be made.

The idea is fundamentally sound, and it has been carried into partial effect with excellent results by a number of well-managed concerns. It suffers from the drawback that the whole structure is based upon anticipation, since obviously it is not always possible to reach the budgeted turnover, however carefully the budget estimate may be made.

If the budgeted turnover be not reached the permissible expenditure must be reduced *pro rata*. Therefore the operation of the existing budget becomes an impossibility. This leads to numerous adjustments, and it is evident that the effective working of budgetary control methods must entail not only a great deal of preliminary work in establishing a carefully balanced forecast, but a considerable amount of additional clerical and senior staff work in checking results against the budget and in making adjustments contingent upon unforeseen circumstances.

As a result of this, it is very seldom that a firm which

claims to be managing its affairs on the budgetary control method will be found to be carrying out the actual system as laid down in the textbooks. The main difficulty lies in the collection of the incurred sectional expenses, and the preparation of the statement checking sectional expenditure against the sum allowed in the budget. This usually entails so much delay that by the time the "budget officer" comes round to make his inquiries, the circumstances which caused the difference have been forgotten. Moreover, on many occasions a sectional expense exceeds the budget figure owing to circumstances over which the sectional head had no control, so that the budget officer, even when an excess has been recorded, can do nothing about it. In one way or another actual use of the method has shown that only in a very limited class of undertaking is true budgetary control a workable proposition.

Some form of budget or programme naturally exists in most concerns. There are few who do not estimate their expected sales turnover, their factory oncosts, company overheads, etc. But as a general rule there is a reluctance to go further than this, partly owing to the personnel problems and expense involved, and partly due to the lack of time on the part of those who are the only ones in the concern capable of drawing up a satisfactory budget. Since the essential basis of the budgetary control method is the checking of actual detailed sectional expenditure against the budget figures, a concern which does not undertake this part of the system cannot be said to be managed by the budgetary control method.

But even budgetary control in its fullest development does not provide that balanced picture of affairs which the managing director has the right to demand. It will tell him whether his expenditure has been above or below his budget, whether his sales turnover is greater or less than he expected; but it fails in that it does not show

him whether his concern is doing better or worse compared with the results of the last financial year.

The fundamental difference between budgetary control and higher control is that the latter records what is actually occurring, whilst the former sets out beforehand a theoretical ideal and then records what is occurring under the aspect of departures from that ideal. In both cases it is left to those in authority to take what steps they think fit to put matters right. From this it will be seen that budgetary control entails a considerable amount of preliminary work in setting the ideal, or budget, which is not necessary in the case of higher control.

If the budgetary control system is to be made as effective from the business, technical, trading, and financial viewpoints as higher control, a most complex structure has to be created, as the budget must fix quotas for all business, trading, technical, and financial sections of the concern. Even when fixed, such quotas will be dependent upon the fluctuating sales turnover, and the labour of checking the monthly results against the previously fixed budgets becomes altogether too extensive to be a practical proposition. Higher control, taking as it does the results as they arise, achieves a greater measure of guidance with an infinitely less amount of labour and expense.

Those accustomed to working on some kind of budgetary control lines, however, will recognize that in the first stages of approach to the problem of obtaining adequate working profits budgetary control and higher control have much in common. Both start by fixing the profit that should be earned; both divide expenditure into definite categories—though on somewhat different lines; and both compare the result obtained against the quota set. But the resemblance is more in principle than in detail method, and the chief difference between the two systems lies in

the objects with which the work is undertaken. Budgetary control claims a profit, sets an income on which that profit should be obtainable, limits expenditure, and then compares results against quotas set. Higher control establishes first what is going on in the business at the moment, sets a profit to be earned, and then builds up a method by which those in control of the concern can see whether that income and that profit are being reached or not.

Moreover, higher control has been designed with a definite appreciation of the value to the managing director of being able to assign responsibility for results attained. The figures submitted to the board by the accountant make no effort towards controlling the results achieved by the senior officials of the company. It is true that the ordinary form of trading account does cover the activities of the works manager in a manufacturing concern, but a consideration of the average profit and loss account provides little indication of any attempt to segregate expenses so as to show those for which the general manager is directly responsible, or those which are under the direct control of the managing director as representing the board.

Fayol's research into the responsibilities of those engaged in administration and management isolated the functions of management and did much to set out the basis of clearer thinking in such matters. But he did not live to complete his work by finding an effective method by which those functions could be controlled. We have seen that the ordinary accountancy methods provide little or nothing of what might be called real control, and budgetary control is not only a highly complicated affair, but also falls short in that it fails to provide that continuous comparison with the last financial year which is so essential. Higher control, with its balanced consideration of the business, technical, trading, and financial activities, all

surveyed from the common comparative basis of last year's annual result, on the trend method, and arranged so that responsibility for success or failure can be assigned in the right direction, is the only effective system which has yet been put forward by which an adequate review of the industrial position of a company can be attained.

## CHAPTER VI

### THE BUSINESS POSITION

IN the majority of manufacturing concerns the business position provides the key to the immediate policy to be pursued. In this section of the control, orders outstanding, orders received, and invoices issued are analysed, and deductions are drawn from the trends of this side of the company's activities. A further examination of these three sets of figures will show that while they are dependent upon one another, each has its own particular significance from the manager's point of view.<sup>1</sup>

It may be as well to observe at this point that absolute accuracy is to be deprecated in the compilation of these monthly figures. This does not mean that orders should be taken into the total twice over, or invoices included which have not been rendered. But it occasionally happens that a conscientious member of the staff will hold back the summary for days because the value of a certain order has not been exactly settled, or because an invoice is in dispute.

It should be regarded as an invariable rule that on the last day of the month the business position records are closed, and where any figures are in doubt an estimate should be made by some responsible person. Should any adjustments be required, these should be made in the following month, and a careful note should be kept so that they may be referred to in the verbal part of the report, if it is thought necessary.

In installing a control it is natural to start with the business position figures, and as a general rule the division of these into normal sections of sales activities presents little difficulty. Most concerns market a number of

<sup>1</sup> For the charts usually adopted to show the Business Position in the control reports, see Figs. 46 and 47, p. 235 and facing p. 236.

different lines, and it will be found that those working in the concern classify the goods sold into normal categories. The same divisions must be adhered to throughout the trading position as well, and in fixing the various categories care must be exercised to see that only such divisions are set down as can be dealt with equally effectively from the profit and loss point of view. Half the value of the profit and loss trends is lost if they cannot be keyed in with the sales turnover sections, and for forecasting purposes the invoices issued may take the place of the actual sales turnover—as the former figure is available at so much earlier a date—provided that allowance is made for claims against long-term contract work. A rise in invoices should, under normal circumstances, correspond with a rise in profit, and the need for investigation of the working of a particular section becomes apparent if these two trends do not march in line.

Once these sales categories have been determined, no alterations or additions should be permitted without the sanction of the managing director himself.

#### ORDERS OUTSTANDING (THE ORDER BOOK)

The order book of a firm at the end of any month consists of the sum of the orders outstanding at the beginning of the month, plus the orders received, and minus the invoices issued, during the month. Though some slight modification of this general description will become necessary under certain conditions, it will serve as a basis for discussion.

(a) *Significance of the Order Book under Job Production Conditions.* Finished stock problems do not affect the concern working under job production conditions. All work is done to customers' definite orders, and the order book will, therefore, be a measure of the activity of the place. The normal amount of work ahead of the place will



depend upon the class of work done, varying from one to three months where medium-size work is undertaken, to six months or more in the case of large work. Such large orders, however, will be less frequent than the smaller work, and take longer to pass through the drawing office and preliminary stages, so that longer notice is required of more orders being required. In every productive undertaking there should be a known normal and a danger-line, so that the manager's attention can be drawn to the urgent necessity of obtaining further work before a difficult position has arisen.

The job production manager is better placed than the batch or mass production manager in this matter. His work usually being of a different nature for every customer, if he is forced to reduce his prices at certain periods to find work, he can regain the normal level later. A cut price in batch work is apt to be followed years later by a demand for a repeat order at the same price—and hence sales difficulties arise.

The order book in a job production concern is far from being the useless record that it is so often considered. As with the other types of undertaking, much valuable control action can be built upon it, when dealing with normals, danger-lines, overtime and nightshift points, and such-like management matters.

(b) *Significance of the Order Book under Batch Production Conditions.* The order book in a batch production works which supplies goods both to customers' special requirements and from stock can act as a link between the sales and production sides of the undertaking. Quick delivery is often a determining factor in the placing of an order, and unless there is some definite liaison between sales and production, the former may make promises which the latter are unable to fulfil.

Every manufacturing concern of this type should have

a certain normal order book which ought to vary only slightly from month to month. In this case, the amount of the order book will usually depend upon the length of time that the customer is prepared to wait for the goods. This important fact was brought home to the writer when he was works manager of a large commercial vehicle concern, with some two thousand employees. There was a full nightshift working, and the place appeared to be fully occupied. But as the writer was studying his records one evening in his office, he realized with a shock that despite an output of approximately forty vehicles a week, there were only just over one hundred vehicles on order, and consequently there was less than three weeks' work ahead of the factory.

This particular aspect of the order book had never occurred to him before, and he hastened to acquaint the general sales manager of his discovery. The latter was equally taken aback, and proceeded to organize a sales drive, which had the effect of pushing the order book up slightly. It soon fell back, however, to the three weeks' work, *but never grew any less*. As vehicles were delivered other orders came in, and at last the writer appreciated the fact that the order book in this particular concern depended entirely upon the delivery that the salesmen could promise. If they offered a vehicle for two to three weeks' delivery, they got the order; if they were unable to offer quicker delivery than four to five weeks, the customer refused to wait and the sale was lost. A careful analysis was, therefore, made of the sales lost in this manner, and the output was gradually worked up to a higher level. The order book automatically increased in the same ratio and continued to stand at approximately three weeks' work.

If a normal figure for orders outstanding has once been established, the danger of production and sales getting

out of step is minimized to a very great extent. If the actual figure exceeds the "normal," it is an indication that production efforts are falling behind sales efforts, and steps must be taken to meet the situation at once, otherwise new business will be lost through delay in delivery. On the other hand, where the actual order book falls below the normal, a special sales effort must be set on foot to keep the factory running at a normal output; otherwise there will be either over-production or idle machines in the works.

(c) *Manufacture to Stock Only (Batch or Mass Production)*. A different problem arises where a firm manufactures to stock only. Here orders are received from day to day, and unless customers desire delay, delivery can usually be effected immediately. Hence such orders do not figure on the order book at all. Such a condition adds considerably to the difficulty of effecting a complete liaison between sales and production, and a great deal of skill and foresight is called for on the part of the managing director in deciding what manufacturing instructions are to be issued to the works.

It will be necessary for him to maintain the closest touch with his selling organization, and a far greater responsibility devolves upon them, too, than is the case where the manufacturing is done to customers' direct orders. They will have to add to their qualities as salesmen a keen appreciation of general business conditions in their respective territories, so as to gauge correctly the possible buying capacity of the district under their charge; they will have to exercise a kind of second sight in foreseeing changes in products that are likely to appeal to their customers; and they must be alert to recognize improvements either in products or service offered by their competitors. The responsibility of the salesmen in this last direction cannot be too strongly emphasized; they

have a unique opportunity in this respect in their daily contacts with rival salesmen and prospective customers which is far beyond the scope of the inside men, who are limited to a great extent to the perusal of competitors' catalogues and general advertisements.

Manufacturing to stock calls for a production programme to cover a longer period than is possible where special orders have to be met, and, therefore, the reports of the salesmen become of the utmost importance. On them, modified by his own experience of the trade, the managing director bases the production programme to be issued to the works, bearing in mind that the production manager requires a steady flow of work and adequate notice of alteration if he is to run his factory with a reasonable degree of efficiency.

But this does not necessarily mean that the firm which manufactures to stock has no order book at all. Large contracts may be placed with them against which deliveries are to be made at fixed intervals. These would naturally constitute an order book in which the bulk order would be entered when placed, reductions being made as deliveries of goods were effected and invoices issued. Moreover, if for some reason the manufacturing orders issued to the works had been inadequate in any particular class of goods, or the production side had not fulfilled its programme by the required date, it might not be possible to meet orders from stock. Then—provided the customer will wait for delivery—these orders would naturally figure in the order book. Under such conditions it would be as well to differentiate between orders outstanding against contracts and orders outstanding for other reasons, as, if the latter show an inclination to rise, some drastic revision of programme may be required.

Alternatively, bulk manufacturing sanctions issued by the board can be treated as orders, and the orders

outstanding will then represent that portion of the sanctions still to be completed by the works. This is perhaps the best method of handling the order book problem in mass production, as it keeps touch between the production and the selling sides, and enables the production manager to ask for further sanctions before there is any danger of a gap in production being caused by the new sanctions not being issued in time to obtain the material required from the suppliers. In all types of mass production the normal period between placing contracts for material and the delivery of the finished goods to the stores is—or should be—known, and the board sanctions must, therefore, be issued on or before this date if no hiatus in service to customers is to occur.

(d) *Long-term Contract Work.* The turnover of certain concerns is made up of a small number of valuable orders, each of which represents a considerable amount of manufacturing activity extending over a long period of time. For instance, a firm may manufacture large machinery units which take more than a year to complete; or a ship-yard may not lay down more than two or three ships a year, and yet keep a comparatively large staff permanently employed.

In such cases the orders outstanding will fluctuate widely. It is a usual practice where large contracts of this type entailing considerable expenditure over a long period are being handled, for claims to be made against completed portions of the work, although, strictly speaking, an invoice is not issued until the job is finally handed over to the customer.

If the order book is to retain any value under such circumstances, the amounts claimed should be deducted as the claims are paid, and the unclaimed portion will then represent the work in connection with that order still outstanding.

There is no great difficulty, therefore, in establishing a

normal figure for the order book in such a firm, and a minimum figure which acts as a danger-signal can be set up with ease. As the order book approaches this figure it will indicate to those in authority that unless another order can be obtained to take the place of the one running out, there is likely to be a slack period in front of the concern, and the responsible head can take every step within his power to ensure that there is more work to follow on.

Moreover, the order book in a manufacturing business of this type can be used as the basis of an even finer check on the works' position. Now that mechanical sorting and tabulating machinery of various kinds is available, it should not be demanding too much of the accounts department to require them to keep a secondary record of direct labour hours outstanding in the various sections, much in the way that some stamping plants keep a record of hours of work ahead of each hammer. This would enable the manager to gauge with even greater accuracy when each individual department was likely to become slack, and to take the necessary steps to find more work to keep his men together. Constant staff turnover is always a bad thing, and everything possible should be done to prevent its occurrence.

In such circumstances the primary figure of the company would be the total value of the portions of the contracts still on the books, while the secondary figures could be split in any way that gave the managing director the clearest view of the position—either as value of work outstanding on each contract or direct labour hours still outstanding departmentally.

There are other types of manufacturing businesses carrying on their work under conditions which differ in varying degrees from those outlined above, but it will be found that the exercise of very little ingenuity will be

required to ensure that the order book is put to its fullest use under the particular circumstances involved.

### ORDERS RECEIVED

The total value of the orders received for the month is one of the most important figures in the control. It serves as a check upon the efficiency of the selling staff; acts as an incentive to further effort when sales are falling off, and indicates, when considered in conjunction with the order book, the need for any revision of the policy and activities of the sales department.

One of the first points to be considered in installing a control system is at what stage an order becomes an order, and is entered in the books. At first sight this seems too simple a matter to call for comment of any kind, but in practice difficulties sometimes arise.

A salesman who has had a favourable interview in which a certain order has been discussed, will frequently give the impression at headquarters that he has obtained this order. Some weeks later the customer may write to the manufacturer stating that he proposes to place this order as discussed with the salesman, and again the rumour will circulate. Finally, the printed order-form will arrive, and for the third time the attention of the chief will have been drawn to the fact that an order of a certain value has been received. Under such circumstances it frequently happens that the managing director gains the impression that business is much better than it actually is.

Again, an order may actually be received which the credit department do not consider good for acceptance. Unless, in fact, some definite arrangement is made with all concerned as to the point at which orders are allowed to be included in the control figures, confusion is likely to follow.

Once the moment has been established at which an order is entered upon the books—and it seems best that

this should not be until that order has been passed for acceptance by the credit department—the question of the treatment of cancelled orders requires consideration.

If any true appreciation of the trend of business is to be attained, it will be desirable to record most of the results of the company in current, cumulative and moving annual total form. If, therefore, the figures of orders received are recorded in this three-fold form, any cancellation will affect all three sets of figures and the order book total as well. An example will illustrate this.

The sales manager of the A. B. Co. is working to a quota by which he must obtain £35,000 of orders a month. In March orders to the value of £45,000 are received, including an order for £15,000 for machinery from the X. Y. Co. Great satisfaction is experienced at this successful result, and the moving annual total rises from £400,000 to £407,500 during the course of the month, as March last year had only provided £37,500 of orders. April, May, and June also bring in orders in excess of the previous year, with the result that at the end of June the moving annual total stands at £420,200.

In July of the previous year £30,200 of orders were recorded, and during the present July orders to the value of £35,700 are passed by the credit department for acceptance. But early in the month the X. Y. Co. are forced by circumstances to ask the A. B. Co. to accept cancellation of the £15,000 order placed with them in March. The latter adopt a reasonable attitude, and agree to cancellation, provided that the X. Y. Co. pay for the work already completed which amounts to £3,000 in value.

At this stage two considerations arise—

- (a) The question of the efficiency of the sales department.
- (b) The record of actual value of orders received, as a guide to the managing director.

The sales manager is justified in saying that in March he



obtained an order value £15,000, perhaps after long negotiations and clever salesmanship. This order also brought the total figure above the quota for the month. The circumstances which subsequently caused the X. Y. Co. to cancel the order could not have been foreseen at the time it was placed, and when the idea of cancellation first was brought up he did his best to get the X. Y. Co. to take delivery. This proved impossible, and it became obvious that cancellation was the only course. Nevertheless, this was a perfectly genuine order, and the fact that what was an order for £15,000 became in effect an order for £3,000 is no indication of the success of the sales department in carrying out their work.

On the other hand, the managing director finds at the end of July that not only has his order book dropped by £12,000, but the order position as a whole is affected. If this £12,000 is deducted from the July current figure it reduces that figure from £35,700 to £23,700, and brings it below the quota—a course which would not only give a false impression to the managing director, but would meet with opposition on the part of the sales manager. Then, too, the orders received in the previous July were £30,200; the actual result implies a rise in the trend, while if the deduction is made the trend falls. It will be seen that this fall would only bring the trend back to the position it would have reached if the order had never been received. But to make the deduction at this point would have a misleading effect, and on the whole the best course would seem to be to take the cancelled sum out of the month in which this order was originally received, and alter the company chart accordingly. This will entail a certain amount of work, and possibly the making of a new chart, but this is, after all, a trivial point compared with the importance of laying an absolutely true picture of the existing position before the managing director.

As far as the sales department is concerned, the best method is to leave the original curves in place, and add a dotted trend line from which the revised position can be seen.

The importance of this problem of cancellations will be realized if it is borne in mind that the trend lines play a most vital part in control work, and the trends will be falsified in the following year if the cancelled orders are not taken out of their respective months. In this particular example, if March in the following year provides £40,000 of orders, the trend will fall if the cancellation has not been taken out, and rise if it has. It will be seen, therefore, that the managing director might easily obtain a false picture of the position.

From the managing director's point of view, the actual situation must be recorded, uninfluenced by any question of efficiency or effort. No matter how admirably the sales manager did his job, the net result to the company was an order of £3,000, and not of £15,000. This, therefore, is the fact of the case, and as such must be the information recorded for the managing director. But from the sales manager's point of view the £15,000 order was a genuine one, and he is justified in keeping it in his private trend chart of orders received. In fact, it is as well if he does, as it will force him to try to obtain orders of equal value in the corresponding month of the following year, if his own trend is not to fall.

It will sometimes be found that a firm has a steady turnover of repair jobs or spare parts, the orders for which are not priced when they are received. There may be a large number of individual orders of this type each month, and to put an estimated value on each item would entail a considerable amount of trouble.

The invoices of these spare parts are always recorded, and if, therefore, it is found that the monthly total of

invoices is of a reasonably steady nature (which is usually the case with a spare part turnover), an adequate idea of the total of orders received by the company each month can be obtained by taking the total of actual orders received for all stocks where values are known, and adding to it the total of the *invoices* for the sales of the spare parts section.

In preparing the control chart of orders received, an indication of some kind should be given on the chart that it includes invoices for spares. If something is not included for the spares the managing director will not get a true idea of what is his turnover of orders received for the company.

In a sense the orders received by a concern are the key to the success or failure of the business. Here and there can be found types of undertaking which receive orders by allocation or by quota from a pool, but in most cases the record of orders received is the trade barometer which moves between fair and stormy. To neglect to analyse those orders properly, to see which categories of goods are doing badly, to see which salesmen or territories are carrying their full share of the struggle for success, is to waste the most valuable means that any management can have for ensuring a steady progress.

There are many modern books dealing with the sales problems, and the reader who desires to develop this side of his responsibilities would be well advised to study some of them. In the space available here it can only be emphasized how important it is to take full advantage of the information contained in the statistics of orders received.

#### INVOICES ISSUED, INCLUDING CLAIMS MADE

The figure for invoices issued is the total of all the invoices issued during the course of the month, but where long-term contract work is undertaken and periodical

BUSINESS POSITION  
OCTOBER, 1937

B. R. 1.

DEPARTMENT	ORDERS RECEIVED					ORDERS OUTSTANDING				INVOICES	
	Position at 31/10/37		Total for 1936	Up	Down	Position at 31/10/37	Position at 31/12/36	Up	Down	Cumulative Invoices Issued	
	Current	Cumulative									
(a) 1. Agricultural Machinery	£ 4,743	£ 106,986	£ 250,263	£ —	£ 103,957	£ 14,198	£ 25,367	£ —	£ 11,169	£ 118,155	
(b) 2. Internal Combustion Engines	18,338	156,324	175,987	6,090	—	23,202	20,320	2,882	—	153,442	
(c) 3. Miscellaneous	7,697	37,904	40,296	7,900	—	3,976	14,976	—	11,000	48,904	
TOTAL . . .	30,778	301,214	466,546	—	89,967	41,376	60,663	—	19,287	320,501	

FIG. 18

claims are made and paid, these are also included. It may be said that the invoices issued figure is an isolated one, as it differs to a certain extent from the figure of sales turnover on which the profit or loss is based. For instance, the claims on long-term contract work which are included in the figure for invoices issued, do not appear in the sales turnover until the complete invoice has been rendered. Then, too, as the figure for invoices issued is made up daily as the invoices go out, cash discounts and similar adjustments are ignored, though they are deducted before the net figure for sales turnover is reached.

But although the invoices issued do not key in with the sales turnover, this figure has a definite use in the control, in that it is of value to the accountant in making up his cash receipt forecast. Also, when compared with the orders received figure, it serves to indicate the lag between the receipt of orders and their final despatch from the works. Bearing in mind these two functions, it will be obvious that little good would accrue from splitting the figure for invoices issued into departmental figures, and though these will always be available in the control assistant's files, it will be enough to incorporate in the report a statement of the primary position on the lines indicated for the primary figures of orders received.

It is naturally of importance that the business position figures, whilst not strictly forming part of the company's books of account, should be included in the standard board returns in some summarized fashion, in order to complete the monthly record.

Fig. 18, B.R. 1, shows a suggested method of setting out the business position for inclusion in the board returns. This method can be varied to a certain extent in accordance with what the managing director personally desires to watch; but in the example given the salient points which show the activity of the concern are made clear.

## CHAPTER VII

### THE TECHNICAL POSITION

WHEN this method was first developed, the approach was primarily from the point of view of what accounting facts and figures the managing director required to know if he was to maintain a proper control over his business. The three aspects first selected—business, trading and financial—seemed to provide all the information necessary to achieve this. As the method was gradually adopted by firms in industry, it became clear that the technical aspect of affairs also needed watching. This was foreshadowed in a paper read by the author before the Institute of Industrial Administration in 1932 entitled "The Management Audit," which has already been quoted on page 3. At that time it was not sufficiently realized that the whole field of technical activities, covering the manufacturing processes, the problems arising from plant, machinery and layout, the experimental and development work, and other works matters naturally had, directly or indirectly, considerable influence upon the business, trading, and financial figures of the company. They needed therefore just as much watching by the chief to ensure that the duties were being properly handled, and were not being neglected or badly managed.

Part at least of this aspect of affairs was covered in the earlier editions of this book by a chapter entitled "Works Control." Most of this has been incorporated in this chapter, in which it is proposed to deal with the method by which the managing director can obtain a survey of what is going on month by month on the technical side of the business.

It will be seen from the frontispiece diagram that the Technical Position has a report of its own made up of sections contributed by the works manager, the chief engineer, and the personnel or labour manager. Most works have different forms of organization, these differences mainly depending upon personalities and the size of the place.

The functions and duties which have to be carried out in manufacturing concerns are the same everywhere, and the fact that the manufacturing unit is a very small one does not mean to say that any of the management functions can be overlooked. It merely means that one individual will have to carry out several of the functions, where in a large concern each function would be handled by a separate individual. From the point of view of working efficiency in the manufacturing concern, the principal factor is that the functions of management should be clearly recognized and properly fulfilled. The titles attached to the positions are immaterial.

The three senior responsible managers in a works organization are usually the works manager, the chief engineer, and the personnel or labour manager, the work for which they are responsible being assumed to be as follows—

(a) *The Works Manager.* All technical and non-technical problems, estimating, operation layout, rate-fixing, jig and tool design and manufacture, all direct processes throughout the works, all indirect services throughout the works, all maintenance of plant and buildings, and general works discipline.

(b) *The Chief Engineer.* Experimental design and experimental manufacture, production drawing office, issue of all drawings and instructions to the works, all inspection (inwards, intermediate, outwards and away

from the works), all tests and trials, and also development of new products from the technical aspect.

(c) *The Personnel or Labour Manager.* Engagement and discharge of operatives (manual and clerical), working conditions, canteen facilities, welfare and social activities, works committees and councils of all kinds.

The above summary only sets out the more important items; the three departments should cover every aspect of the works activity of an ordinary industrial undertaking.

The work of both the chief engineer and the labour manager is of a nature which does not readily lend itself to statistical record, and only a few figures can be included in the Works Statistics. For his control of these two departments the managing director will have to rely upon his personal contacts with these two senior members of his staff, and his knowledge of how the directions he has given are being successfully followed out.

A different state of affairs exists as far as the works manager is concerned. He is in control of the production unit upon which the whole fabric of the company is built up, and he has to guide and control the manufacturing side, just in the same way as the managing director has to guide and control the company as a whole. In fact, Higher Control originally evolved from a system of works control which was built up in a large manufacturing concern, and it was the success of this works control that brought about the attempt to extend the principle to the company as a whole.

Works control is based upon works or cost accounts in precisely the same manner as company control is based upon the financial accounts. It may be said to treat the works as if it were an independent concern. There is much in favour of this method, as in most undertakings the works where the goods are produced can be treated



as an entity, separated out from the administrative and selling sides.

A considerable number of concerns treat the manufacturing side of their activities as merely expenditure in material and wages, to be combined with the other items in the total expenditure of the company. This is most frequently found when the works and the head office from which the company carries out its correspondence are under the same roof, and admittedly there are cases in which it would seem difficult to differentiate between what are works expenses and what are company expenses. At the same time, wherever there is a works producing goods for disposal against payment there must be certain individuals whose activities are entirely outside the works manager's—or the head foreman's—sphere of control. And since the isolation of definite categories of expenditure must always be the preliminary to better management, there appear to be more arguments in favour of setting up a line of demarcation between a works and the rest of the business than there are of bringing them all in under one head.

The aim of works control is to ensure that the production and the sales are running in step, with finished stocks of goods acting as an equalizer between them. If sales outrun production, business will be lost owing to the fact that delivery cannot be given; if production outruns sales, stocks will increase and money thereby be locked up, with consequent financial danger to the company. A works control, therefore, should aim at an accurate picture of the balance between production and sales, with the rise or fall in stocks showing clearly in which direction things are moving.

To obtain this picture, it will be found that the following items give the necessary indications—

(a) Orders received at works.

- (b) Order book at works.
- (c) Stocks (of finished goods).
- (d) Total employees.
- (e) Nightshift and overtime.
- (f) Works output.

Beyond these items come a range of works efficiency figures which are not in themselves an indication of the position of the manufacturing side, but are of considerable value in increasing the efficiency standards of the place.

For control purposes the above six items should be combined in one large chart, and from the movement of the various lines in relation to each other it can be seen whether the works and sales are moving in step (see Fig. 19, inset facing p. 111).

#### ORDERS RECEIVED

When the control is being installed a decision must be made as to whether orders received, orders outstanding, stocks and works output are to be recorded in sales value or in works cost value.

The former method, from the works point of view, is not altogether satisfactory, since the gross profit is included in the sales price and where several types of product are manufactured, an order of £1,000 in sales value may represent a factory cost of anything between, say, £400 and £800. In some concerns, if the works order book were kept in sales value an altogether untrue impression might be given. And since it is as important for a works manager to obtain a true picture of his position in works control as it is for the managing director in company control, working in sales values should be avoided, unless it is a case of an undertaking where gross profits are standard and small discount variations will not introduce any error worth mentioning.

It will be assumed here that of the six items mentioned (a), (b), (c), and (f) will be recorded in works cost allowance figures. A works cost allowance figure is established by assessing the value of the order received at something as near as possible to its factory cost, i.e. material, labour, and factory oncost. It is not necessary to make this figure an absolutely accurate one, since as long as the figure at which the order is booked into the order book, and is finally taken off the order books when invoiced, is the same, there is no reason why that figure should be the actual factory cost of the work. It should be, however, reasonably close, as the picture will be distorted if there is any considerable difference.

There should be no particular difficulty in making up these works cost allowance values. In the case of a job production concern all orders will be received against previous quotations, and the estimated factory cost figure is therefore available when the order is received. In the extreme cases where orders are received without a previous price quotation, the accountant should be able to make a reasonable estimate of what the works cost will be, and any slight inaccuracy here is not likely to upset the control, since only a very small percentage of total orders will be received without stated price.

With batch production concerns the establishment of a works cost allowance value for each type of machine or class of goods marketed is not difficult, and once established can be used for future orders.

In mass production the works cost allowance figure becomes simpler still, and where standard costs are worked to, the standard cost figure would be the works cost allowance figure.

#### ORDER BOOK

The works order book will be shown both as gross and net. This has been found very advisable for works

control, as frequently, although the works order book stands at a high figure, a good deal of the work represented has already been completed, and the shops have not a great deal ahead of them. This tends to give a totally untrue impression of activity, which can be avoided by deducting from the gross order book all that work which has passed final inspection but not actually been delivered and therefore invoiced. The net order book, then, in this manner shows the amount of work still ahead of the shops, and the net order book line is the one which the works manager will follow in order to watch what is before him.

This method of differentiating between the gross and net order book has a further advantage. Goods which are completed but not delivered to the customer are apt to take up floor space, and even to get damaged during the waiting period. There is bound to be a normal amount of such work about the place, probably passing through the stage of dismantling, packing, etc., and in every works there should be a normal difference between the gross and net order book. Where the works manager observes that this difference is increasing he can take steps to reduce it, either by arranging with the salesmen to approach customers to take delivery, or by occasionally packing ahead of actual instructions, or possibly by other means. The main point is that his attention is drawn to the fact that an abnormal amount of goods is lying between final inspection and invoicing, and that something ought to be done about it.

### STOCKS

The whole stock problem in industrial undertakings is a complex and difficult one, and adequate control of stocks, whether rough or finished, is most vital side of a modern works management. With rough and semi-finished stocks

we have nothing to do here, the problem in control being how to make sure in any concern that finished stocks are adequate but not excessive.

(a) *Job Production.* The problem of finished stock does not arise at all in job production. Work is manufactured to a customer's order, and as soon as it is completed it is dispatched. Now and again the job production concern will occasionally make one or two extras of an approved model for stock whilst they are making one for a customer, but this is very seldom done, and the practice often proves unsatisfactory if adopted.

(b) *Batch Production.* The problem of stocks in batch production is often the worst thorn in the side of the works manager. It is seldom, if ever, that the sales department in a concern of this type can forecast precisely what they are going to sell. A range of models is on the price list, and any of these may be called for by customers at any moment. Where the articles sold are expensive items, such as machine tools, motor vehicles, or printing machinery, an injudicious choice of the models to be put through manufacture may result in a considerable amount of money being locked up in stock for which there is no ready market.

The usual method of authorizing production under such circumstances is for sanctions for certain quantities of the different models to be put through as and when required. The speed at which these sanctions come forward will depend upon the speed at which the respective models are sold, and when trade is good it is not infrequent for the whole of a batch to have been sold long before their manufacture had been completed. The customer is prepared to wait and the manufacturer therefore is in clover.

As the tide turns, however, the question of quick delivery plays a considerable part in determining whether the purchaser will purchase or not, and the promise of

four, six, or eight weeks' delivery loses the order to another firm who can give delivery from stock.

The problem, therefore, of being able to provide immediate delivery of any model on the sales list then begins to take a prominent position amongst the works manager's difficulties, and in quite a number of concerns the nervousness with regard to locking up money in stock with a slow turnover is so great that the company prefers to lose sales rather than go to the other extreme.

The solution of the stock problem in batch production is the principle of working to "permissible stocks." It is certainly unreasonable to ask a sales manager of a batch production concern with a large list of models to give a production sanction of a definite nature. Where normal batches consist of ten, twenty, or perhaps fifty machines, spread over a wide market, he cannot be expected to say exactly whether ten or twenty of a given model are likely to be wanted in the coming year. Working to three or six months' programmes would quite possibly reduce the sanctions below the economic batch, so that the works manager is not much better off if the programme period be reduced.

On the other hand, any sales manager should be closely enough in touch with the immediate sales situation to know what quantity of each model he would like to have held in stock for immediate dispatch. Five of this, seven of that, two of the other, and so on—no great difficulty is involved in limiting the amount of finished stock held in this manner—and once these figures have been settled the works manager can organize his production by maximum and minimum figures for finished units, finished parts, and rough material, and start the batches off through the manufacturing process in accordance with the demand.

When working to these "permissible stocks" the assembly floor is considered to be at the disposal of the

sales department. There are very few assembled items in which it makes any real difference in cost whether small or large batches, or in the case of heavier work, single machines, are assembled at the same time. In a firm manufacturing commercial vehicles, for instance, *with the stores and assembly shop properly organized*, it is just as simple to assemble ten engines each of three different types as it is to assemble thirty engines of one type. The same principle applies to complete vehicles, machine tools, or, indeed, to any other form of batch production article; it is merely a matter of the proper issue of the parts from the stores. As long as the necessary units are available in the stores any model can be assembled; and as long as the necessary finished parts are in the stores any unit can be assembled.

Obviously this principle must be understood in a reasonable manner; the smaller the article the larger, in all probability, would be the economic batch for assembling, and it must be clearly understood that line assembly by conveyor is not under discussion here.

By the use of the "permissible stock" method, as soon as one model is sold off the floor another is immediately assembled and takes its place. In this manner the replacement of stock up to the permissible quantity becomes automatic, but the permissible quantity of stock cannot be exceeded because as soon as the maximum quantity is completed no more are assembled. The unit and part stores, working from maximum and minimum quantities, call for replacement of their stocks as the figure approaches the minimum, and in this manner the entire stock of the company is controlled, not from theoretical forecasts of what may be required, but from the actual sales made.

Obviously there will be times when finished stocks will run right out. A sudden call on a model may result in

all completed items being sold before they can be replaced, and the production shop will then have to set about speeding up the replace batches. But the principal thing to be appreciated about this "permissible stocks" method of working is that it puts a quite definite control limit upon the value of stocks held, and entirely prevents that disastrous runaway effect which has so often caused the greatest difficulty in times of falling trade in the past.

If sales fall off—even if they cease altogether—no excess of stock can be manufactured. The assembled models reach their maximum figure and stop. The assembled units reach their maximum figure and stop. The finished parts reach their maximum figure and stop, and since there is no more call for finished parts, no more material is drawn from the rough stores to pass through the machines. In this way the whole industrial machine pulls up, and the worst that can happen is that parts already in the shops proceed to their completion. This, it may be said incidentally, is the best thing that can happen to them, as half-finished batches of material lying about the shops are always subject to depreciation and loss, and are much better completed and properly under safeguard in the stores.

The stock portion of the chart, therefore, shows the percentage of actual stocks compared with the 100 per cent represented by the total works cost allowance value of the permissible stocks. In practice it will be found that this normally stands round about 75 per cent. If it went up to 100 per cent it would show that the works effort was pulling ahead of the sales effort, and should be cut down.

(c) *Mass Production.* In establishing a works control in a mass production concern, the first step is to investigate the periodic fluctuations of the business and draw up a master curve on a percentage basis. Such curves are really



frequency curves, and as many years' results as possible should be taken in order to establish the normal.

Each year's results should be examined to see whether there is any abnormal fact, such as a coal strike, a general strike, or some factor arising from the business itself, contained in the results, but the normal contingencies should not be taken out. Contingencies will always continue to arise in any business and they must be allowed for.

From these various results the normal curve is drawn out, and this then acts as a guide for the rise or fall in works activity. Whatever the state of trade, the activity of the works will rise and fall in accordance with the normal seasonal fluctuations, the difference naturally being that when trade is bad the peaks will be lower than when trade is good.

Once this normal fluctuation has been established, the estimated works output for the year will be subdivided monthly on the percentage basis called for by the normal. This gives the works an approximate guide as to the number of employees that will be necessary, and also the extent to which stocks are likely to fluctuate.

Here a clear appreciation of the difference between stock problems in batch and in mass production must be kept. In batch production, working to permissible stocks, seasonal fluctuations can be met by expanding and contracting the permissible stock figures. This causes an automatic increase or decrease in stock, and at the same time retains the control of the total figure involved. In mass production, however, such as in the case of motor cars and motor cycles, where a very pronounced seasonal demand is felt, it would be very difficult to increase or decrease employees directly in accordance with the increase or decrease of seasonal demand. It would be quite impracticable to rely upon obtaining labour at the most

important periods, and reducing the total employed as soon as the pressure was over. On the other hand, to keep a permanent staff employed all the year round would entail the accumulation of a very considerable number of persons during the slack periods in preparation for the peak sales during the busy period, and the financing of such a policy might introduce difficulties.

In cases of this kind an intermediate line of action must be decided on, in which stocks are kept within reasonable bounds, and the fluctuation in the number of employees also brought down to practical limits. In this way it is quite possible to set out a manufacturing programme based upon the normal monthly fluctuations and allowing for maximum stock limits each month.

### EMPLOYEES

The rise or fall of the number employed in the works is an important factor to watch, as a falling off of orders received should usually be followed by a reduction of employees unless the stock line shows a corresponding rise. This curve should also be watched in connection with the nightshift and overtime.

### NIGHTSHIFT AND OVERTIME

Overtime is an expense on the business, and should be strictly avoided except when urgently required for reasons considered sufficient by the works manager. Continuous overtime should be replaced by more employees. If this is limited by plant, a nightshift should take its place.

In concerns subject to seasonal fluctuations there will be certain periods when additional effort is to be expected. In such works it is impossible to keep a normal amount of production going on continuously, and through certain periods of the year nightshift is bound to be worked.

The control chart enables this increase of staff to be

watched, and it warns the managing director if there is any likelihood of trouble arising in the future from insufficiency of works effort at any given time.

### WORKS OUTPUT

The works output must be measured in the same units as the orders received and orders outstanding, and is the yardstick by which the production effort is ascertained. To avoid the inequalities caused by the different number of weeks in the works' monthly periods, and also the incidence of holidays, these results should be shown on a "per working day" basis as well as in actual figures.

The "per working day" basis—usually abbreviated to "p.w.d."—is a simple and convenient method by which any works figures may be continuously compared. It is not unusual to hear complaints being made about the impossibility of comparing one month with another, owing to the different lengths of the various months. Some concerns have changed over to the thirteen period year on this account, and although the thirteen period year presents certain advantages, it also has a considerable number of disadvantages, and it is difficult to see that any better results can be obtained by working with the thirteen month period than on the p.w.d. basis, as far as production records are concerned.

Although the engineering type of manufacturing concern has been taken as an example in this discussion, the same principles apply to any industrial undertaking in which there is a manufacturing or producing side. There is precisely the same principle, differing only in detail, in setting out the task before the manufacturing unit, showing the key items which govern production, and the response of the production unit to the demand of the selling side, the whole based upon the normal fluctuating demand due to seasonal influences.

In some cases there are definite restrictions which introduce factors that have to be taken into account. For instance, a colliery may be working to a definite quota and not to a fluctuating sales demand. A trawling company may have little or no definite sales demand, the output obtained from the trawlers being dependent upon what they can bring to market in first-class condition. In the innumerable activities of industry there are many different phases of this problem of controlling production, but in all of them there must be certain definite factors through which the efficiency of that production can be controlled.

It is just this variation in the factors which makes it so advisable that the production side of an undertaking should always be kept clearly separated from the selling and administration sides. However much they may form one physical unit, whether worked from one building or handled by one staff, from the management point of view it is undoubtedly sound to differentiate between them, and so establish whether the alterations that keep on arising month by month in the position of the company as a whole are due in the first instance to production problems or not.

Fig. 19 is an actual example of one of these works control charts at the end of a year's working. The story that it tells is interesting to those who have had experience of trying to keep works and sales in step, and at the same time to retain a prompt and effective control over the stock position.

The firm in question manufactured a class of goods which had a normal maximum demand in March, April, and May. The rest of the year there was a certain amount of fluctuation in demand, with a secondary period of definite increase in September; the problem that the company had to face, however, was to meet the big demand in

the spring without losing sales owing to shortage of stock, and without over-production.

In January the firm was running with about 600 men on dayshift and an output of about £1,230 p.w.d. The order book was particularly low, the net figure being £30,732 as compared with the usual normal of £37,000. Stocks were somewhat dangerously high, being 92 per cent of the permissible figure, and, in short, there was every evidence of production having overrun sales towards the latter end of the previous year.

The works manager had been taken to task about this, and in consequence was determined not to start increasing production for the spring peak until stocks had been reduced and a more normal order book obtained. In February he observed that the trend of total orders received fell from £346,519 to £341,707, and although sufficient orders were received to bring the net order book just above the normal, the fact that the trend of total orders was falling showed that less orders were received in February than had been received for February the year before.

From his general knowledge of the state of the market and trade as a whole, the works manager firmly believed that the spring orders were going to be considerably less than previously. Certain good customers were, he knew, not doing particularly well, and although he was well aware that the usual increase in employees would have to be made as the months passed, he anticipated a comparatively small addition to the 600 men at present employed.

In March a further small fall, from £341,707 to £340,901, in the trend of total orders received tended to confirm his opinion. By the end of March, as the works output was still standing at approximately £1,050 p.w.d. and

increased orders were being received, the stock had fallen to 69 per cent and the net order book had risen to £43,124.

April showed the trend of total orders received making a slight rise from £340,901 to £350,296, and during the month the steady rise in the order book and the equally steady fall in the stocks began to make the works manager consider that he might perhaps be mistaken in his opinion as to the trend of business for the year. In the early part of the month he began to put on overtime to try to cut the order book down somewhat, but the incidence of the Easter holiday reduced him to only twenty working days, and the additional expense of overtime did not help him much. In the last week of the month he had started his nightshift, with over 5,000 hours a week of overtime being worked at the same time.

From this point onwards he had a hard struggle against a sudden increase of business. A change in the political situation had upset the state of affairs upon which he had based his forecast, and trade became in actual fact better than in the previous year. From April to June orders were pouring in at a faster rate than usual, and the works manager was forced to build up his nightshift from zero to 12,000 hours in about two-and-a-half months.

The order book stood at its highest figure in June, but from that point onwards the increasing nightshift had its effect, and the rate of works output being by now greater than the rate at which the orders were being received, the order book in July showed a fall. The stocks kept at a low level until early August, and by that time the works effort was sufficiently great to cope with the orders received during the month, reduce the order book, and begin to build up the stocks again.

In September the net order book had reached normal once more, and the stocks were increasing at a rapid rate. The works manager knew that continued production at

£2,000 p.w.d. output was too much for the rate at which orders were coming in unless the trend of orders received continued to rise sharply. This he knew could not occur, and he therefore thought it wise to begin reducing his output before stocks became excessive.

In this instance his deductions were perfectly sound. From September the trend of orders began to fall off again; the order book kept approximately round the normal, and the stock increase grew much less. October and November saw the nightshift gradually taken off, until in December only the normal overtime was being worked.

At the end of the year the position had been straightened out again. Stocks were round about the usual percentage; employees were slightly increased above what they had been in January, and the order book was just about on the normal point. A turnover of £370,854 had been achieved for the year, and the company was ready to start on the next phase of the usual annual round.

The moral of this tale is that the works manager should have increased his production effort at least a month or six weeks before he did so. His fixed opinion that trade was going to be bad for the year led him to hang on much too long, and he should have been overruled by the M.D. who ought to have had a sounder knowledge of the position. Once the order book had passed the gross normal figure he should have allowed only another week or two to pass before starting to build up his nightshift. The latter should have been starting about the fourth week in March instead of the last week in April, as actually happened.

The fact that the trend of orders received fell from January to the first half of March should not have been given as much weight as the fact that the order book was

rapidly rising. An overfilled order book invariably means lost trade, and in this particular case a great deal of trade was lost in the months of June, July, and August, when the stocks dropped to as low as 30 per cent of the permissible figure. In seasonal trade it is very difficult to recapture business that is lost in the peak months, and the M.D. should have carefully watched that the stocks did not fall below 70 per cent as a minimum throughout March and April.

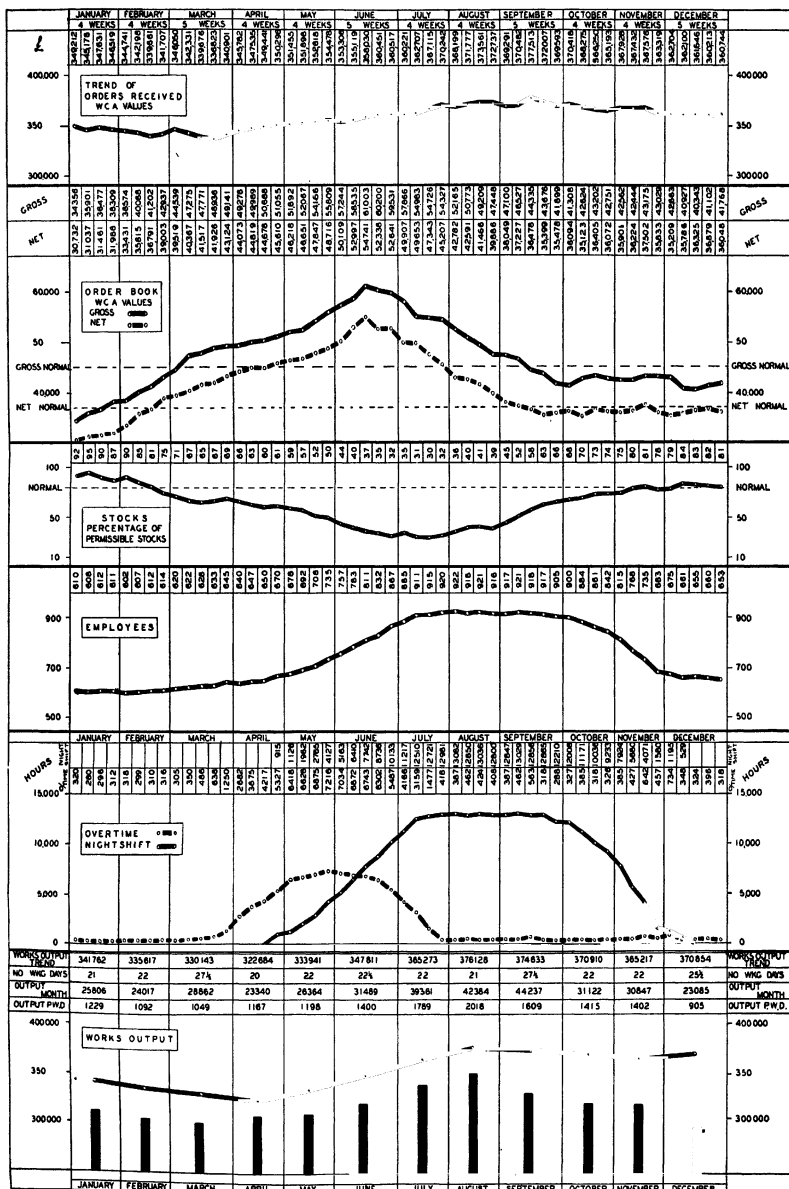
An insistence on this point would have brought the nightshift into being at an earlier date and allowed it to be more gradually built up. Nightshift, when started, is usually composed of reliable men taken from the dayshift, and as the nightshift increases the new hands are mostly taken on the dayshift, at any rate for a period, whilst more experienced men work the nightshift. In some departments, however, this is not always possible, and it is common knowledge to those who have works experience that a considerable amount of delay is caused and money lost by the training of new men. Where a double shift is running, spoiled work is always attributed to the nightshift, and it is by no means easy to arrange proper supervision and inspection of the nightshift work without excessive expense. There is therefore every reason for a nightshift to be built up slowly and carefully, and panic increase of employees in the course of a few weeks is the last thing to be desired in good works management.

The works manager's delay in putting on the nightshift also caused a considerable expense in overtime throughout April, May, and June, which could have been avoided to a great extent had the nightshift been started earlier. Overtime is a most undesirable form of productive effort, and should only be used in cases of real emergency. It is simple enough to reckon up the normal number of overtime hours per week required for maintenance and other





# WORKS CONTROL CHART





general purposes—in this particular example this figure is taken at about 300 hours—and everything above this should be the subject of investigation with a view to reduction.

It is not too much to say that a works control chart of this type acts as a complete guide to a managing director as to how matters are going on at the works, and whether the works manager is balancing his production correctly. Delays due to bad planning will show up by a rising order book or by a fall in stocks; excessive overtime is immediately noticeable, and the answer to the problem as to whether sales and production are properly running in step can be seen in the clearest way—in a way, in fact, which is utterly impossible if merely statistical returns are analysed.

The figures of orders received, orders outstanding, percentage of stock, employees, nightshift and overtime, and works output which have been dealt with above are not the only ones which should be recorded in connection with a proper works control. There are, in addition, a number of other details that can be watched with advantage, and although a list of these will naturally vary to some extent in accordance with the type of works under examination, the following list may perhaps be put forward as covering the majority of points worth watching.

#### WORKS STATISTICS (WEEKLY)

##### PRIMARY FIGURES, SHOP PAY ROLL

1. Total number of employees.
2. Overtime hours.
3. Nightshift hours.
4. Percentage of hours worked on direct labour.
5. Percentage of hours worked on indirect labour.
6. Percentage of indirect to direct hours.
7. Percentage of hours worked on day work.
8. Percentage of hours worked on piece work.

9. Percentage of day work to piece work.
10. Total pay roll.
11. Overtime and night rate allowances.
12. Average percentage of bonus earned.

SECONDARY FIGURES, SHOP PAY ROLL

*Number of Employees.*

13. Males over 21 years.
14. Males under 21 years.
15. Females over 21 years.
16. Females under 21 years.

*Direct Hours.*

17. On day work.
18. On piece work.
19. Total.
20. Percentage on day work.
21. Percentage on piece work.

*Indirect Hours.*

22. On day work.
23. On piece work.
24. Total.
25. Percentage on day work.
26. Percentage on piece work.

*Pay Roll.*

27. Direct wages.
28. Indirect wages.
29. Percentage of direct wages.
30. Percentage of indirect wages.

*Earnings.*

31. Average hourly earnings, male.
32. Average hourly earnings, female.

Some comment in connection with the above may perhaps be of assistance in appreciating the relative importance of the items.

PRIMARY FIGURES

1. *Total Number of Employees.* This is always a matter of interest, and is a good indication of the activity of the works.

2. *Overtime.* As mentioned earlier, this is a figure over which strict control should be kept. The maximum normal overtime should be fixed, and any excess over this normal should be the subject of investigation.

3. *Nightshift.* Where the works burden is tending to increase, a watch should be kept on the number of hours worked nightshift in order to see that it is increasing proportionately. The weekly figure also acts as a check for the works manager to see whether his instructions to take off nightshift after a period of pressure are being followed out.

4 and 5. *Percentage of Hours Worked on Direct and Indirect Labour.* These figures are complementary, and the two combined make up the total hours for the week. They are usually compared against a normal percentage to see whether they are above or below what they ought to be.

6. *Percentage of Indirect to Direct Labour Hours.* This figure is usually watched in most works with a view to keeping down the percentage of indirect hours as much as possible.

7 and 8. *Percentage of Hours Day Work and Percentage of Hours Piece Work.* Piece or bonus work being now in vogue in most production centres, it is naturally of importance that as much work as possible be done on payment by results, and only jobs for which prices cannot possibly be fixed should be left to day work.

9. *Percentage of Day Work to Piece Work.* The percentage of day work to piece work is also of interest, and enables a closer watch to be kept over the relation of the two methods of payment to each other.

10. *Total Pay Roll.* This is the figure for all wages paid and is usually used in the same manner as the figure for the total employees, to give a quick idea of the activity of the works. It is also a figure of importance in the

financial cost forecast when ascertaining the amount of wages for which provision must be made in the future.

11. *Overtime and Night Rate Allowances.* The actual sum of money shown paid above normal wage rate, for overtime and nightshift, is apt to make more impression upon the works manager than the number of hours worked. It should be remembered that overtime and nightshift allowances constitute a dead loss to the company, and as such should be limited as much as possible.

12. *Average Percentage of Bonus Earned.* This is a figure which needs carefully watching. A low average bonus may mean dissatisfied workmen and trouble in the shops, either due to bad rate-fixing or too great a proportion of untrained men—which usually brings with it excessive spoiled work and delay in production. A high average rate of bonus is to be encouraged as long as the rate-fixing is sound, but the works manager should be sure in his own mind that a high rate is not due to bad rate-fixing, bringing about excessive bonuses for subnormal work.

The remaining figures are often of use to the management and, if they can be easily obtained, it is worth while having them. There are times when they can prove of great assistance in obtaining greater efficiency in the place.

A word may perhaps be said here regarding the fixing of normals for these works efficiency figures. Conditions vary very much in every concern, and it is practically impossible to fix standard normals. The most practical plan is simply to take the results that exist when the figures are first got out, and then work at bettering these. Once the percentages have been established and the simple line charts started, upon which the results are marked up week by week, a few months' experience, coupled with continuous

efforts to improve, will show what the normals for that particular works should be.

### FACTORY ONCOST STATISTICS (MONTHLY)

#### PRIMARY FIGURES

1. Total actual factory expenses.
2. Factory expenses absorbed, surplus or deficit.
3. Percentage of actual factory expenses to direct labour.
4. Number of working days.
5. Actual factory expense cost per working day.

#### SECONDARY FIGURES

##### *Actual Factory Expenses.*

6. General expenses.
7. Repairs and maintenance expenses.
8. General expenses.

1. *Total Actual Factory Expenses.* It is usual to take these figures out monthly instead of weekly. The pay roll must be dealt with week by week, and therefore the pay roll statistics can be obtained without difficulty each week. Factory expenses, however, are best dealt with on a monthly basis when the works production account is made up.

The total amount of expense at the factory, like that of the total pay roll, is of value for cash forecasting purposes, and also enables the works manager to see what is going out in factory expense each month. He should have a sliding scale normal for his factory expenses, according to the figures of direct labour or factory output, whichever he prefers.

2. *Factory Expenses Absorbed, Surplus or Deficit.* In works where the factory expense absorption method is used, this figure enables the works manager to make sure that he is not showing a deficit on his factory expenses. A surplus on factory expenses is naturally an additional profit on the goods manufactured, and where a heavy



surplus is shown it enables the managing director to lower selling prices, if necessary, and still make a normal profit.

3. *Percentage of Actual Factory Expenses to Direct Labour.* A considerable number of works apply their oncosts in making up their prices by means of a percentage on the direct labour. Although not the best method of recovering oncosts, in many cases it is sound enough in principle, and this figure therefore enables the works manager to see whether he is above or below his normal percentage.

4 and 5. *Comparative Cost p.w.d. Number of Working Days and Actual Cost.* As explained earlier in connection with the works control chart, the incidence of holidays and the different lengths of the calendar months make it very difficult to compare the factory expenses. By taking the number of working days in the month and dividing the total factory expenses by it, a figure of factory expense per working day can be obtained which is directly comparable month by month.

As has already been stated, the statistical returns from the chief engineer's and personnel manager's departments cannot cover more than a few aspects of their work. The following items are of interest, and can be obtained without much difficulty—

#### CHIEF ENGINEER'S STATISTICS (MONTHLY)

- Number of new production drawings issued.
- Number of drawings recalled for alteration.
- Number of draughtsmen employed.
- Increase/Decrease since last month.
- Number of tracers employed.
- Increase/Decrease since last month.

Number of Inspectors employed, male  
 Number of Inspectors employed, female  
 Total

Increase/Decrease since last month, male

Increase/Decrease since last month, female

Total

Number of Rejection Notes issued

Works cost value of work scrapped (a) operatives' fault

(b) material fault

(c) drawing fault

(d) other fault

Total

Number of customers' complaints

### PERSONNEL MANAGER'S STATISTICS (MONTHLY)

Employees engaged during month

Males over 21 years

Males under 21 years

Females over 18 years

Females under 18 years

Total

Employees left during month

Males over 21 years

Males under 21 years

Females over 18 years

Females under 18 years

Total

The mere number of drawings or rejection notes issued means nothing in itself, but in works affairs the "law of average" seems to apply in a particularly interesting manner, and even recorded totals of this nature show up abnormalities. The value of work scrapped is important, and should always be recorded monthly, split as shown. The number of customers' complaints will also be found to keep very constant in most industries.

Labour turnover is shown by the employees joining and leaving each month. Good works management endeavours to keep them as low as possible.

The Technical Position is the section in which most of the general comments on the day-to-day happenings in the works will arise, although many of them may not be

of a technical nature. The other three control aspects deal more with the statistical side of the business—the extent to which its activity is increasing or decreasing, the extent to which that activity is profitable or unprofitable, and the extent to which the financial structure is strengthened or weakened by that activity. It lies, therefore, with the managing director to decide how far he considers it of value to extend the record of the monthly diary of events, in order that in his own report to his colleagues on the board he may be able to give a balanced survey of the working of the company during the period under review.

## CHAPTER VIII

### THE TRADING POSITION

THE standard control statement of account sets out the trading position of the company month by month. Examples of this have already been given, and a further specimen is included on p. 165 as part of the set of standard board returns that will be discussed more fully later.<sup>1</sup>

This statement is for all practical purposes a combined manufacturing, trading, and profit and loss account. The first item taken is the sales turnover, from which is deducted the cost of manufacture, thus arriving at the factory surplus, sometimes called the working surplus when the "production centre" is not an actual factory.

From this factory surplus are then deducted exceptional trading expenses, company overheads, fixed charges and special charges, each in turn, thus arriving at the finish at the final figure of divisible profit which is carried to the balance sheet.

It will be seen that the items are arranged in accordance with management responsibilities. The works foreman or manager, or perhaps the production manager, is responsible for the factory surplus; the general manager for the exceptional trading expenses and the company overheads; whilst the managing director might be said to be responsible for the fixed charges and the special charges, though in actual practice the managing director would probably take responsibility for all expenses below the factory surplus.

The author has found that it is often assumed that

<sup>1</sup> See also Figs. 45, 46, and 47, pp. 231, 235, and facing 236.

higher control is only suitable for large concerns, owing to references to production managers and general managers—officials who usually exist only in undertakings of some size. This is a complete mistake. The responsibilities of management exist in every business, large or small, and whether each functional responsibility is handled by a separate individual, or one overburdened person has to carry the lot, does not nullify the fact that those responsibilities have to be met if the place is to be run efficiently. The control has been worked out so as to isolate, as far as possible, the functional results. Those results can then be referred to the different individuals responsible in a large concern; whilst in a one-man business they indicate to the owner or head which particular section needs attention.

The statement of account is the essence of the whole higher control system, in which a management structure is built on a foundation provided by the accounts. To those who are reluctant to develop the statistical side of their business, for one reason or another, it may be said that on this statement alone a considerable power of control can be obtained.

The trading results of the concern, set out in this manner, point directly to the departmental fluctuations, and the very fact of drawing up the statement brings about that arrangement of the items which must be made if the true picture of the business is to be obtained.

It has already been shown that all the figures set out in the statement of account exist in every business, in the manufacturing account, the trading account, or the profit and loss account, and the only difference between the control method and the old method is that the former is arranged from the management point of view.

To advocate the use of this presentation of the figures is not, as some professional accountants at first imagine,

an attack on established practice, and an attempt to upset recognized methods of accountancy. It is rather an attempt to make a much more thorough use of the figures that the accountants provide by viewing them from the aspect of management efficiency rather than of book-keeping accuracy. It is an attempt to unify the work of the accountant and the manager, and so enable each to obtain the maximum benefit from the work of the other.

There is one point in connection with the handling of these trading position control figures which has come to light in the course of the practical working of this control method in various concerns. That is, that all the detail figures provided in the Statement of Account *can be used for management purposes*, even though the inability to calculate the closing stock figure has prevented the trading or profit or loss position for the period being established.

The author desires to lay emphasis upon this point, as in his experience cases have arisen where an accountant of a cautious temperament has delayed the submission of the trading position figures for month after month on the grounds that it was impossible for him to satisfy himself that his stock figures were accurate, and that to present the Statement of Account would therefore be misleading as far as the final profit figure is concerned.

But if the Statement of Account items shown in Fig. 24 be considered with care in conjunction with the detailed expenditure analyses given in Figs. 27 and 28, it will be seen that whilst the Statement of Account (Fig. 24) cannot be completed if the closing stocks are not known, the expenditure analyses (Figs. 27 and 28) are in no way affected by the stock valuation.

Whilst the managing director needs his closing stock figure in order that he may be able to ascertain the profit or loss for the month, he is, or should be, perpetually watching his expenditure to see whether it can be reduced.

If, therefore, the detailed expenditure analyses (Figs. 27 and 28) are presented to him regularly, he can utilize these results to help him in his management, even though for the time being he may have to remain in ignorance of his trading result for the period.

It is, therefore, of the utmost importance that the expenditure analyses sheets should be produced regularly month by month, and not delayed because the closing stock figure has not been ascertained.

In order to provide as much information as possible to assist those who wish to use this form of control to classify their expenditure correctly, it is proposed to go through the items of the standard statement of account one by one, and comment on the different points of interest that arise in connection with each.

#### ITEM NO. 1 (SALES TURNOVER)

When installing a control, a careful decision must be made whether this figure of sales turnover is the gross or the net one. This must depend upon the circumstances of the case, and the items of which the difference between the gross and net figures is made up.

If the gross figure be taken, these difference items will appear as selling expenses amongst the company overheads, and being deducted at that point, the net profit recorded at the foot of the sheet will be identical with the figure that would have been obtained had the statement of account started with the net sales turnover figure. Moreover, this method has certain advantages to commend it. The factory is not concerned with selling discounts; the factory manufactures the goods, and the cost is the same whether the article be sold at list price or list less 20 per cent. Hence, if the gross sales turnover figure be taken, before deduction of trade discounts (cash discounts are not referred to here), the working cost percentages and

the factory surplus will more accurately represent the true facts of the case.

The selling discounts will be included in the category of sales expenses, which again is correct, as a discount to a factor or agent represents a payment to him for selling the goods, just as does a salary and/or commission to a full-time traveller of the firm. So that if a firm does its business partly through factors and partly direct, the category of selling expenses would not be accurate if it did not include the discounts allowed to factors. Naturally under such circumstances the selling expense category would be suitably split, so as to show how much was paid to agents or factors, and how much was spent inside the firm.

Where straightforward direct sales obtain, the figure for sales turnover will be the net one; but the matter is best settled by discussion between the managing director and the accountant in the preliminary stages of arranging the figures on the control basis. Anything that tends to cancellation of items should be strictly avoided, as useful and important information may thereby disappear.

In cases where the management opinions appear to be equally divided on whether the gross or net sales turnover figure should be used for the Statement of Account, the author would recommend that the gross figure should be used in order to keep the working cost percentages as correct and comparable as possible. The mere fact that the gross sales turnover figure does not represent the figure of actual cash received is of secondary importance compared with the loss of the management advantage obtained by watching the working cost percentages.

Where it is of definite importance that discounts, allowances and other sales rebates should be carefully watched, it is advisable to prepare a separate brief statement showing how the drop from the gross to the net sales figure comes about.



Cases sometimes occur where a gross list price is nominal only, subject, perhaps, to 75 per cent off, and even more. This is usually where price agreements have been built up by a trade association many years ago, and the raising or lowering of sales prices to the customers for those goods is kept uniform amongst members by the decrease or increase of the discounts off the standard figures. In such cases it is not unusual for an objection to be raised by the managing director to heading his Statement of Account with a sales turnover of £20,000 for the month, when the net figure is round about £5,000.

If he wishes to use his working cost percentages for comparative management purposes, however, he must hold his gross figures steady in some manner. There is, of course, no reason why he should not deduct 50, 60, or 70 per cent from his gross sales turnover, and take his working cost percentages on the resultant figure, provided he invariably deducts the same percentage. But the only advantage he would gain from this would be the reduction of his gross sales turnover figure to something much nearer the real net sales turnover figure—if that is an advantage.

Again, cases will be found where it is an invariable trade practice to give a definite percentage off list price to all customers for no reason except that of lowering the price of the goods. In other words, the salesman expects to sell his goods at list less 10 per cent and only considers that he is "meeting" a customer when he allows a discount higher than 10 per cent. Here again it is possible for the gross sales turnover at list price to be reduced by 10 per cent and the working cost percentages taken upon the resultant figure, if the managing director desires it.

The author has passed through much discussion on this point with managing directors, but remains of the opinion that only in quite exceptional cases is it wise to depart

from the practice of starting the Statement of Account with the gross sales turnover figure and deducting the various discounts, rebates and drawbacks at a later stage.

In any case the figure for sales turnover will probably differ from the figure for invoices issued, mentioned in the Business Position chapter, as the latter more often than not represents the value of all goods despatched before cash discounts are taken. Also where a manufacturing concern is engaged on long-term contract work a considerable discrepancy is often apparent, as mentioned in the previous chapter. In this case the figure for *invoices issued* generally includes claims on partially completed work, but this partially completed work does not appear in the *sales turnover* until the work is finished and the final invoice made out; in the meantime it shows as an increase in the work-in-progress.

Cases occasionally arise where a sales turnover is not a straightforward matter. Certain companies, for instance, operate by sending out their products on hire instead of direct sales, and there are other variations of the normal sales turnover. But where manufacturing is involved it will invariably be found that the goods must leave the factory door at a definite price—no matter to whom that price may be invoiced—and it is therefore not difficult to work out some scheme by which a sales turnover figure can be found, and from which the factory surplus or deficit can be ascertained.

#### ITEMS NOS. 2, 3, 7, AND 8 (STOCKS AND WORK-IN-PROGRESS)

Both opening and closing stocks refer only to process stocks and finished parts and goods. The first figure for the period shows the balance sheet figure at the conclusion of the last financial period, whether month or year.

It would, of course, be simple to show the increase or

decrease in stocks as a single figure instead of the actual opening and closing amounts. From the manager's point of view this is not satisfactory, as it is important to bring to his attention the actual stock figure at the beginning and end of the period. Merely to know that the stock has increased by £15,000 is of little use, since if the opening figure for stock was £5,000 and the closing figure £20,000, the rise may be of the utmost importance in the control of the concern. But where the stock has risen from £500,000 to £515,000 the rise will probably be of little significance—unless it represents yet another increase in a long series which the managing director is endeavouring to stop. The actual figures for opening and closing stocks should always be clearly stated.

The figure for work-in-progress represents the direct material, direct labour, and factory oncosts recovered (in other words, factory cost) of all work under construction at the beginning and end of the period, the opening figure being that shown in the balance sheet at the end of the previous period.

The normal figure for factory oncost recovered should be included in the value of work-in-progress, as if this is omitted and prime cost only be given, it is apt to produce a misunderstanding as to the ultimate sales turnover value of that work-in-progress.

Some accountants adopt a very conservative attitude towards stock valuation and prefer to hold such in the books at prime cost, i.e. material plus labour only. However useful this may be for balance sheet construction, it is misleading when adopted in control work. If this method of valuation of stock and work-in-progress is used, the result will be that where the sales turnover for the month is largely taken from stock, a profit for the month will be shown which was in actual fact produced in previous months. Where stock increases during the

month, the profits shown for the period will be less than they actually were. What, in effect, occurs is a transference of profit according to stock fluctuation.

The holding of stock in the books at cost or market valuation, whichever is the lower, may apply to the annual inventory in order that the item shown in the balance sheet may be of trustworthy value. But little purpose is served by the manager complicating his own problems. He does not want the profits or losses of his business to show variations dependent upon whether the turnover comes out of stock or not. It makes things much more clear for him to adopt a method by which his stock and work-in-progress are held in his production account at factory cost, and his figure for profit is not then affected whatever may occur with respect to the stock.

In a manufacturing concern the valuation of stock and work-in-progress at "cost or market value, whichever is the lower," will obviously only be affected if the market price for the goods falls so low as to be less than the production cost. In an extractive industry, however, such as coal, stock will be held at a value which is probably based on the value of the opening stock plus any additions to stock valued at the market price for the current month in which they went into stock. Coal as produced from the pit has no defined value until screened into its different grades, and until these different grades have been sold it is difficult to put a fair value upon what has gone into stock.

In a case of this nature, therefore, the practice of valuing stocks at cost would be impossible owing to the difficulty of ascertaining the production cost of each grade of coal. Hence, such stocks would be held at market value, and so any loss is automatically written off should the market value of the coal fall to a lower figure than the weighted average upon which the value of the stock has been fixed.

In connection with this problem the following extract from the late Sir Gilbert Garnsey's paper on "Limitations of a Balance Sheet" is of interest—

Attention may be drawn here to a point which is frequently misunderstood regarding the effect on the accounts of a so-called conservative policy. The main burden of such a policy would fall upon the first year of its adoption; thereafter the effect would be limited to the growth in that element of the business to which the policy is being applied. For example, if stock were to be undervalued consistently, the profits will be understated in the first year, but not afterwards, unless the volume of stock is increasing; on the other hand, in a year in which the volume of stock is reduced the profits would be overstated.

If the word "month" be substituted for "year" in the above extract, it applies to the control statement of account.

Before leaving this stock question it may be as well to mention an important point frequently met with in connection with control work. There are a great many firms who say that they cannot possibly obtain monthly figures, as they cannot "take stock" each month. Their records are uncertain, their staff too small, and anything like a running inventory or a monthly physical stocktaking is for them out of the question. They, therefore, rely upon half-yearly stocktakings, and carry on in the intervening months by guesswork.

There is really no excuse for this policy, because it is a simple affair to obtain a monthly stock figure in any form of industry. The departmental stores, whose very existence depends on accurate knowledge of their stock values, have long since solved the problem of monthly or even weekly stock-value fluctuations, and there is no reason why any other type of concern should not adopt much the same method.<sup>1</sup> This method, briefly, is as follows—

Every concern takes a physical stock of all material and work-in-progress once a year. That stocktaking,

<sup>1</sup> See Appendix B. "Stock Valuation in Retail Distribution."

after pricing and extension, gives the actual value at that particular date. The value is sometimes modified where stock is written down, but a figure is finally reached which is taken into the balance sheet. For this balance sheet figure all classes of material, both direct and indirect, are put together.

The direct material portion of this figure, therefore, forms the closing stock at, say, 31st December, and will be the opening stock for January. During the month of January the following expenses arise in the factory—

1. Direct material.
2. Direct labour.
3. Factory oncost, made up of—
  - (a) Indirect material.
  - (b) Indirect labour.
  - (c) General charges.
  - (d) Standing charges.

Now in every concern, however small and short-handed, it is to be presumed that direct material is not issued except against requisition, so that the value can be ascertained and charged against the job. Indirect material can be issued and recorded in precisely the same manner.

Labour, both direct and indirect, must be properly recorded for pay-roll purposes, so that no difficulties arise with them.

The general and standing charges usually come directly under the book-keeper's or accountant's hands, and he—or she—can without difficulty allot or reserve any items not specifically known.

In other words, all the outgoings for the factory can

be ascertained in a simple manner, and totalled for the month with very little trouble.

Let us now consider the equation—

$$\begin{array}{ccccccc}
 \left\{ \begin{array}{l} \text{Opening Stocks} \\ \text{and w.i.p. in} \\ \text{Factory Value Cost} \end{array} \right\} & \text{plus} & \left\{ \begin{array}{l} \text{Material, Labour} \\ \text{and Factory On-} \\ \text{cost booked dur-} \\ \text{ing the month} \end{array} \right\} & \text{must equal} & \left\{ \begin{array}{l} \text{Factory Value of Goods} \\ \text{despatched dur-} \\ \text{ing the month} \end{array} \right\} & \text{plus} & \left\{ \begin{array}{l} \text{Closing Stocks} \\ \text{and w.i.p. in} \\ \text{Factory Value Cost} \end{array} \right\} \\
 A & & B & = & C & & D
 \end{array}$$

*A* we know, from the annual stocktaking (audited figure).

*B* we know, from the accountant's books and pay-roll.

*C* we do not know in all probability (assuming that no proper costing system exists).

*D* is what we wish to ascertain.

In certain firms there is no difficulty in obtaining the factory cost value of the month's sales turnover. In the great majority of the smaller undertakings, however, the actual factory cost of the individual jobs invoiced during the month is not known. Hence, with *C* not known, *D* is unobtainable. The problem is to establish *C*—which will give us *D*.

The reader is now referred back to the discussion between Mr. Robinson and Mr. Thomas in Chapter IV; he will remember that the statement of account for the year showed a factory cost equal to 67·7 per cent of the sales turnover. This is a figure taken over the twelve months' working, and so can be taken as a very fair presentation of the usual state of affairs in Mr. Robinson's works.

If, therefore, we multiply the figure for the month's sales turnover by 67·7 per cent, we shall obtain a figure for the factory cost value of that turnover which will be very close to accuracy. Taking the figures from the statement of account on page 55, and assuming a sales turnover of £1,550 for January (Mr. Robinson's year being taken to

have ended on 31st December), the calculations would be as follows—

A. Opening Stocks	.	.	.	.	.	£	£
B. Direct Material	.	.	.	.	.	478	4,362
Direct Labour	.	.	.	.	.	122	
Factory Oncost	.	.	.	.	.	199	
						<hr/>	799

(The above ascertained from the company's books of account for the month.)

C. Sales Turnover for month	.	.	.	.		£	1,550
Factory Cost = 67.7%							
Hence, Factory Cost Value of Sales Turnover							
= $\frac{1,550 \times 67.7}{100}$	.	.	.	.	.		1,049

We now have—

4,362 plus 799 = 1,049 plus *D*.

From which *D*, the closing stocks, will be found to be £4,112.

If the procedure be repeated as each month passes, the cumulative figures should be dealt with first, and the current monthly figure then obtained by subtraction. In this way the "opening stocks" will continue to be the physically ascertained figure at the end of the last financial year, and the possibility of error is still further reduced. All items, naturally, will be taken as cumulative figures from the beginning of the year.

It is, as will be seen, a simple and effective method, and that it should be so little known in the manufacturing industries, whilst a very similar calculation is widely used in the distributive industries, is evidence of the lack of touch that exists in such matters. But since it is beginning to be admitted that the principles of sound management are the same in all types of industry, it may be hoped that some reciprocity in management technique will result in the future.

Since this book was first published it has become apparent that the calculation of the closing stock values



represents one of the most difficult problems in monthly accounting.

The following methods are available—

1. *Visual estimation.* In *small* businesses the manager or foreman can often make a very close guess as to whether his stocks are more or less than they were at the annual stocktaking. This may seem a rash suggestion to put forward as a basis for control working, but in actual practice it is surprising how small a margin of error occurs. If the *same* individual makes a careful estimate each month, taking and keeping for reference a few notes, this method is workable in the small concern.

2. *Equation with previous year's factory cost percentage.* This is explained on pp. 130 and 131.

3. *Equation with factory cost percentage based on physical stocktaking made every three months,* the calculations each month being based on the percentage ascertained at the end of the previous month.

4. *Equation with estimated factory cost value of goods invoiced.* This is perhaps the most common method, but needs handling with extreme care and insight, or misleading results can be obtained.

Where cost figures are only partial or known to be inaccurate, the factory cost of the goods will have to be estimated, and due allowance made for the undercharge known to exist in the cost record. If a recorded factory cost is less than the actual material and labour used, then to deduct that recorded cost from the stock will result in the margin between recorded and actual cost remaining in the stock, and thus causing inflation. The error is all the more serious where the factory oncost recovery figure is calculated on a "percentage on direct material and labour" basis, as the following example will show; in this 10 per cent on material and 100 per cent on labour is charged to cover factory oncost.

Factory Cost	Material	Labour	F.O.	Total
	£	£	£	£
Actual . . .	100	25	35	160
Recorded . . .	80	20	28	128
	Difference . . .			<u>£32</u>

In this case, if the recorded (but inaccurate) figure of factory cost be deducted from the opening stock figure, the closing stock figure will be inflated to the extent of £32. This, in turn, inflates the profit for the month by the same amount. It will be seen that when the annual physical stocktaking takes place this inflation will come to light, with disastrous results.

Where costs are known to be inaccurate, therefore, either the accountant must adjust his recorded results to a figure as near as possible to what he considers correct, or else he must deduct his total oncost recovered from the total oncost recorded for the month, and show the difference as "Factory Oncost Under-recovered" deducted from the factory surplus, in the Statement of Account.

It might perhaps be pointed out here that most cost accountants have an intimate knowledge of what is going on in the factory, and a shrewd idea of what adjustments are necessary to bring recorded costs more nearly into line with actual costs.

5. *Accurate compilation of factory cost values of goods invoiced.* This can be used by concerns where a really accurate costing system is installed and is known to provide correct figures.

6. *Accurate compilation of stock and work-in-progress values.* This is naturally the best method of all, but can only be adopted by those concerns which have installed the proper systems and office machinery to handle it.

It can be stated categorically that there are no grounds for the belief that "we cannot have monthly accounts in our business, because we cannot possibly get our stock

figures." In one way or another any form of stock or work-in-progress can be assessed, and safeguards applied to unorthodox methods so that they can be used without danger of giving false impressions. The "Adjustments" section at the foot of the Statement of Account permits a qualifying figure to be included in the managing director's picture of the position, if any nervousness be felt as to the danger of hidden inflation.

#### ITEM NO. 4 (DIRECT MATERIAL)

Direct material represents the total value of productive material passing through the purchase book for the period, irrespective of whether it is contained in goods identified with the sales turnover or not.

The form of the analysis of purchases under different categories will depend entirely upon the nature of the concern involved. But whatever that form may be, only productive material is included, and not purchases of, say, coal or other items which properly form part of the factory or company overheads.

#### ITEM NO. 5 (DIRECT LABOUR)

This figure for direct labour includes all expenditure on productive labour during the period, irrespective of whether it is contained in goods identified with the sales turnover for the period or included in work-in-progress or process stocks.

Care should be taken to differentiate between what is true direct labour and what is really indirect labour which should form part of the factory oncosts. This is an important distinction, as confusion between the two items is liable to render them difficult to control. It is always desirable that direct labour should form a definite proportion of the sales turnover, and any undue rise in this proportion would, under normal circumstances, show the

need for an investigation of manufacturing method, etc. Moreover, where the oncost recovery is based on the direct labour figure, it is doubly important that the distinction should be observed, otherwise the significance of this recovery figure would be lost.

Hence, where labourers who usually are charged to indirect labour are put on to a job of a direct nature, they would naturally be included in the direct labour figure, and the indirect reduced by that portion of the week spent in working direct. But the attempt to get "casual" work into the direct category is liable to be uncertain and to defeat its own ends.

For instance, it will sometimes be found that a foreman who is working full time on a job will be charged as direct labour to that job. As long as he does nothing else whatsoever, it might be claimed that the charge was correct. But such cases seldom arise outside the heavier industries—shipbuilding, bridge-yards, and similar concerns—and the principle is only suitable where the amount of supervision and general labouring charged to the particular job is a figure liable to remain unchanged over a long period (during the completion of a ship, for instance). Any attempt to charge supervision direct in a works where the foreman has many different jobs to supervise is not likely to be satisfactory.

It is certainly always sound to identify as many charges as possible as direct labour or material costs, so as to leave the remainder which will be allocated as oncost as small as possible, and so obtain the maximum degree of accuracy in costing. This question, however, needs very cautious handling, and it is as well to accept the recognized definition of "direct labour cost" as follows—

*Direct Labour.* Labour expended in altering the composition, condition, conformation or construction of the product. (Costing Terminology, 1937, issued by the

authority of the Council of the Institute of Cost and Works Accountants.)

#### ITEMS NOS. 6, 9, 10 (FACTORY ONCOSTS)

These items represent the whole of the factory expenses for the period under review.

The term "factory oncosts" covers all expenses incurred in the running of the factory as a complete unit. It is sometimes the practice to book against the factory a proportion of extraneous charges, such as the managing director's salary or head office salaries, but in the writer's opinion this does not serve any useful purpose. In control statements the ideal at which we aim is the getting of the clearest possible picture of each unit under its own individual responsibility, and the factory oncosts should include only those expenses which arise in the work for which the factory manager is definitely responsible—even though some of them are non-variable and cannot be reduced whatever effort the factory manager may make.

The factory oncost figure is one which calls for careful analysis, and when installing a control a good deal of care should be taken to see that the items included under this head are true factory expenses and not part of the general company expenses.

It was at one time the custom to split oncosts and overheads into variable and non-variable items. The idea at the back of this was sound enough, the intention being to separate the items which the works manager could profitably watch from those which were not susceptible to any action on his part. It may be questioned, however, whether this is the most effective arrangement.

This is not the place for a lengthy discussion on oncost collection and distribution; the principle to be kept in view is to obtain the maximum amount of information and control with the minimum amount of complication. In

practical control working, it has been found that this end is best achieved by splitting up the factory oncosts into four items as follows—

- |                       |                      |
|-----------------------|----------------------|
| 1. Indirect material. | 3. General charges.  |
| 2. Indirect labour.   | 4. Standing charges. |

By taking the standing charges as an item to themselves this arrangement obtains the same result as the older method of differentiating between variable and non-variable oncosts, since the standing charges are the non-variable items.

Hence, the indirect material figure should give the total expenditure on material of every sort and description not forming part of the goods sold. Similarly, indirect labour represents all wages paid to employees who are not actually "altering the composition, condition, conformation or construction" of the material forming part of the goods sold. Supervision is usually kept separate, as indicated in the expenditure analysis.

The standing charges are the items of rent, rates, taxes, insurance (except National Health Insurance), and depreciation, and into the general charges category are collected all the remaining expenses that are not definitely indicated for inclusion in the other three.

The four divisions are, therefore, simple enough to understand, and seldom does an item arise that cannot be classified at once. Management salaries are taken into general charges, shown separate from office wages as a rule.

Occasionally an unusual arrangement in the organization will call for a special arrangement of the statement of account, and it is fortunate that the standard lay-out of the statement lends itself readily to modifications and simple alterations. For instance, a works may possess a chief engineer's department, in which the drawing office, experimental shop, and test house come outside the

works manager's responsibility. The statement of account would then read as follows—

	£	£	£
SALES TURNOVER . . . . .			15,560
WORKING COST			
Opening Stocks . . . . .		32,452	
Direct Material . . . . .		6,273	
Direct Labour . . . . .		1,627	
Factory Oncost . . . . .		1,812	
		42,164	
<i>Deduct—</i>			
Closing Stocks . . . . .		31,655	
WORKING COST . . . . .		10,509	
<i>Add—</i>			
COST OF CHIEF ENGINEER'S DEPARTMENT			
Drawing Office Charges (including C.E.)	365		
Experimental Shop . . . . .	127		
Test House . . . . .	68		
Total . . . . .		560	
TOTAL MANUFACTURING COST OF			
GOODS SOLD . . . . .			11,069
FACTORY SURPLUS . . . . .			£4,491

FIG. 20

Similarly, if there is in the works building an executive office and staff not coming under the jurisdiction of the works manager, the "departmental direct" expenses of that office can be taken out and shown separately.

It may be pointed out that this method of collecting the factory oncosts into indirect material, indirect labour, general charges, and standing charges makes no attempt to allocate those oncost items to the production or service departments. All we are concerned with here is the subdivision of the heterogeneous mass of miscellaneous expenses into four logical categories, so as to obtain a broad relation between the variables and the sales turnover. The allocation stage is a later one, which more properly belongs to the field of cost accountancy.

In the example given above, the "Cost of Chief Engineer's Department" could either be the direct departmental cost (i.e. salaries, wages, and materials) only, in which case the works manager would carry in his oncosts the chief engineer's share of general and standing charges; or the accountant could allocate to the chief engineer's department a fair portion of the general and standing charges, in which case the works manager's oncost would be reduced by that amount. The disadvantage of departmental splitting is that the totals for the various items are not quickly discernible, and in control we are primarily concerned with totals, and only secondarily with how those totals are made up.

Much depends on the circumstances of the case, but the reader should be on his guard against confusing control requirements with cost accounting requirements. Cost accountancy represents really a more advanced and intricate stage in control which should form a goal to be attained after the broad control lines have been established.

Where a concern is accustomed to working on the 'recovery' principle, the statement of account alters its aspect slightly, as follows—

	£	£
SALES TURNOVER . . . . .		15,560
COST OF MANUFACTURE		
Opening Stocks . . . . .	32,452	
Direct Material . . . . .	6,273	
Direct Labour . . . . .	1,627	
Factory Oncost recovered . . . . .	1,650	
	42,002	
<i>Add :</i> Factory Oncost <u>under</u> recovered . . . . .	162	
<i>Deduct :</i> <u>over</u> . . . . .	—	
	42,164	
<i>Deduct :</i> Closing Stocks . . . . .	31,655	
COST OF GOODS SOLD . . . . .		£10,509

FIG. 21



The "recovery" method is of considerable value to the manager, as it indicates whether the concern is running above or below normal capacity by the fact that there is some over- or under-recovery of the factory oncosts. There are, however, certain points that require to be watched in this connection.

For instance, a concern may have one department in which the oncost is particularly heavy. A period of pressure in this department will result in a high recovery figure—perhaps providing an over-recovery for the factory as a whole, even though other departments have not recovered their own portions. Where drastic differences of this nature exist, it may be as well to split the return to show where over- and under-recoveries arise.

The need for this must depend upon the decision of the managing director. Quite possibly it will only be necessary to treat it as a special investigation, to be undertaken occasionally when considered necessary. Provided a fixed recovery figure is known for each department, a reference to the sales analysis summary will quickly account for the variations in the total percentages.

#### ITEM NO. II (COST OF GOODS SOLD)

This title is subject to alteration in accordance with the type of concern for which the statement of account is being made out. Sometimes "Working Cost," "Cost of Production," "Cost of Manufacture," can be used with better effect. Whatever the title, it should indicate clearly the stage reached in the management structure.

Not infrequently unusual forms of manufacturing expenses are to be met with. Factored goods are bought and resold at a profit with no work done on them. As long as they do not form part of the manufactured product (in which case they would be included in direct material) it is best to take them right out of the sales turnover and

cost of goods sold, and show them in a separate small statement of account, in which the profit made can be added into the factory surplus, if desired: thus—

	MANU-FACTURED		FACTORED		TOTAL	
	£	£	£	£	£	£
SALES TURNOVER . . . . .		1,550		375		1,925
COST OF MANUFACTURE						
Opening Stocks . . . . .	1,010		327		1,337	
Direct Material . . . . .	692		194		886	
Direct Labour . . . . .	251				251	
Factory Oncost . . . . .	346				346	
Sum . . . . .	2,299		521		2,820	
Deduct : Closing Stocks . . . . .	1,212		364		1,576	
COST OF GOODS SOLD		1,087		157		1,244
FACTORY SURPLUS . . . . .		463		218		681

FIG. 22

This enables the examiner to watch the manufacturing results undisturbed by the factored goods—and so establish whether the manufacturing or the factoring is really

SALES TURNOVER . . . . .	£	£
		12,747
COST OF MANUFACTURE		
Opening Stocks . . . . .	27,634	
Direct Material . . . . .	5,062	
Direct Labour . . . . .	1,319	
Factory Oncost . . . . .	1,243	
Sum . . . . .	35,258	
Deduct : Closing Stocks . . . . .	26,119	
Cost of Manufacture, Portion completed at works.	9,139	
Add : Cost of Portion completed Outside . . . . .	937	
TOTAL COST OF GOODS SOLD . . . . .		10,076
FACTORY SURPLUS . . . . .		£2,671

FIG. 23

arrying the concern, or whether the honours are equally ared.

Again, it sometimes happens that a certain amount of the process is contracted out, and paid for as invoiced. Here, again, the outside work must be kept separate in the statement of account, or the picture will be destroyed (see Fig. 22, p. 141).

Circumstances vary in individual cases, but there is no great difficulty in dealing with them by means of the standard statement of account. As long as the examiner concentrates on keeping the independent factors separated so that they can be watched individually, the whole thing comes together again at the factory or working surplus, before the selling and administrative expenditure are brought in. Almost any form of variation, therefore, can be successfully dealt with without loss of proper control.

#### ITEM NO. 12 (FACTORY SURPLUS)

This is an important figure in control work, representing as it does the difference between the sales turnover and the cost of the production or working activity. In a manufacturing concern the works manager, as has been seen, is responsible for the items above this point, and the managing director, the general manager, or whoever is the executive head of the concern, will be responsible for what remains. It is not only important from the point of view of the allocation of responsibility, but it has a very great comparative value when it is desired to examine the results of a number of different concerns on a control basis.

It should be borne in mind that the "factory surplus" for the month will not necessarily represent the "factory effort" for that month. Goods may be sold from stock, or put into stock, and where the sales turnover is low for the month the factory surplus will be correspondingly reduced. It is erroneous, therefore, to treat the factory

surplus as if it were an indication of whether the factory has done well or badly during the period.<sup>1</sup>

One of the advantages of this higher control method is that it can provide a direct comparison of the results of a number of different concerns by building up these statements of account in standardized form. In an attempt to compare the working of two different firms manufacturing, let us say, motor cars, it will usually be found that if existing results are taken, the methods in which the accounts have been arranged differ sufficiently to make a sound comparison impossible.

There is not necessarily anything wrong in this. Manufacturing accounts can be prepared in many different ways, and provided the principles of accountancy are properly upheld, the final result cannot be challenged. The individual preferences, however, held by different accountants for different methods of reaching the same result lead to difficulty if intermediate stages in two sets of accounts are to be compared.

One firm, for instance, will prefer to watch its cost of goods sold by taking out the cost of every part and loading it with its appropriate share of the total overheads of every description which the company has to carry. In this manner the closest individual check is kept on every part against a predetermined estimate and the smallest deviation immediately corrected. A system of this kind, however, calls for a staff and speed in execution which few firms are prepared to provide; but there are many others who go to the other extreme and make no attempt to differentiate between oncosts due to manufacturing and overheads due to administration. To the trained accountant these differences in practice present little difficulty, as he is so well aware of what he has to expect that it matters little to him at what stage in the proceedings

<sup>1</sup> See Chapter X on "Checks and Comparisons."

the entries are made. But to the manager who is endeavouring to see clearly his position, or a trustee who is faced with responsibility without executive authority, or, again, to the bank manager who is anxious to obtain a rapid survey of how things are going on, these different methods of making up accounts provide a real obstacle to straightforward comparison.

If, therefore, the factory surplus, which is the difference between the sales turnover and the cost of goods sold, is the first definite milestone on the road to net divisible profit, it is advisable that this should be the first point of comparison where the results of a number of independent but allied concerns are being controlled. Furthermore, this method of using the factory surplus to mark a definite step in the statement of account can be used to estimate what the result would be if one of these works was combined with another or possibly disposed of to outside interests.

Precisely the same method may be used where a single works has a number of different sections, or even where it is all one concern but dealing with a number of different products under which the oncosts can be successfully divided.

The important thing is to allocate to definite works, departments, or sections, those expenses which can legitimately be said to arise in those places; and to charge the company as a whole with those expenses which are incurred for the benefit of the company as a whole. It may be possible to take the whole of the sales department expenses in a concern marketing a dozen specialities, and allocate a proportion of those expenses to each of the speciality departments. But such allocation can only be done on a theoretical basis—probably on the sales turnover of each of the specialities—and a theoretical basis of allocation to sections of expenses which are of a general nature has as much chance of being inaccurate as accurate.

It appears, therefore, that as far as control work goes, it is wiser to keep as far as possible away from figures arising from allocation and to stick to actual facts. If the control statement as shown here contains the opening and closing stocks (these are known), the direct material and wages (these are known), and the actual factory oncost (this is known), then the manager has before him the actual ascertained figures from which he can make certain whether his "cost of goods sold" represents the correct proportion of the total sales turnover. The allocation of these expenses to the various jobs, the building-up of their factory cost, and the comparison of the factory cost with the sales price, come under discussion at a later stage of the control statements, and form in actual fact part of the secondary control.

Under normal conditions, there should be a given surplus on a given sales turnover, with that surplus increasing at a greater rate than the turnover when the latter is rising. This increase in the percentage of surplus on turnover should be looked for immediately trade improves, because unless it is apparent, it is an indication that oncosts are increasing in an undue ratio. As the sales turnover of a manufacturing firm increases, the direct material and direct labour are expected to increase in the same proportion, but this is not the case with the factory oncost. Certain items of the latter will not increase at all unless the growth in turnover is so large as to necessitate an extension to the works or the buying of more plant. Again, the item of "supervision" will not show any increase until such time as it becomes necessary to take on more foremen to handle the increased number of workmen, nor "works staff" until additional staff is needed to cope with the increased clerical work involved.

There is little difficulty in preparing a series of simple charts to ascertain the factory surplus required to meet

normal expenditure based on turnover variations. All of them will start with the profit figure expected at certain turnovers, between the break-level point at which income just covers expenditure, and the profit expected in the ideal condition when the whole concern is employed up to the maximum of its capacity. It will be found that there is an optimum point in most cases, and it is quite possible—indeed, usual—for a condition to arise where increase in turnover shows a decrease in profits. Moreover, there is a normal working activity in most concerns at which the organization is at its most efficient point, and any attempt to go past this brings with it a considerable increase of risk from inefficiency of organization, lack of finance, or even the incurring of opposition from larger competitors who have previously been content to accept the presence of their smaller rival.

A managing director should watch with great care where this maximum efficiency point is likely to arise in his concern. It is true that he may be able, by prudent management, to push that point gradually up the turnover curves—by training his staff, by simplifying his organization, by widening his markets, and by steady and sound finance. But even he will be forced, if he be wise, to admit that there is a point at which his concern will not keep in perfect condition—a point at which the efficiency of the business has begun to depend more upon his personal genius than upon its own inherent soundness. That is the point where decline begins to set in, and readers will call to mind examples of reputations slowly lost and businesses, once flourishing and efficient, beginning gradually to go downhill owing to the neglect of this principle.

#### ITEM NO. 13 (EXCEPTIONAL TRADING EXPENSES)

This item covers all those non-recurring or exceptional expenses which cannot be booked to factory oncosts or

company overheads without distorting the normal figure for these.

In every business there arise from time to time expenses that are unusual or exceptional. A lawsuit is lost; compensation of some kind has to be paid; a foreign exhibition causes an unusual expense, and so forth; but whilst these expenses have to be met, before the profit for the year can be ascertained, it may well become a matter for argument whether they should be charged to the production, the selling, or the administrative departments—or, alternatively, kept separate.

Let us imagine that some important personage pays an official visit to the works and a sum of £300 is expended in cleaning and decorating the place and entertaining the visitors. The managing director and the board may consider that the visit provides excellent publicity and is well worth the expense. The works manager, however, seldom looks with favour upon such visitations, owing to the amount of dislocation in his normal work. If he is working on a control basis he will probably have a factory surplus quota that he is endeavouring to provide, and he will not be at all pleased if he is informed that the £300 which represents the cost of the visit is to be carried by his factory oncosts, in addition to the loss of output and general dislocation occasioned by the visit. On the other hand, if there is a general manager and he is striving hard to keep his company overheads down to the quota, he also will not welcome the suggestion that these overheads should be increased by £300 during that month, when he himself possibly is doubtful as to the real value of the publicity involved.

It is necessary, therefore, to create some intermediate category of expense to which these exceptional trading expenses can be allocated, and this allocation serves a double purpose. If that £300 were allocated to the factory



oncosts or company overheads for that month, the trend of such expenses would show a rise that year and a corresponding fall in the year after. Now the only really effective method of reducing expenses to their absolute minimum is to keep them as steady as possible in total, and see that their ratio to turnover is stationary or falling. If these exceptional trading expenses are allowed to find their way into the factory or company overheads, it entails a kicking effect in the trend charts which effectively destroys any real attempt to keep such expenses on the falling grade. The exceptional trading expenses line, on the other hand, may be allowed to kick as much as it likes. It is understood to be a free-lance category, governed by a total permissible figure for the year settled by the managing director, and as long as such expenses are kept within that total no harm will be done.

Care should be taken, however, not to abuse this category, by charging to it expenses which, though erratic, are regular in incidence. There is a tendency for heads of departments, once it is known that a category for exceptional expenditure exists, to claim that certain items usually charged to their own departments should be taken out and included in the exceptional category. It is sound practice for the accountant, before the monthly results are got out, to lay all such claims before the managing director and obtain his agreement to the list of exceptional expenses for the month.

#### ITEM NO. 14 (GROSS TRADING PROFIT OR LOSS)

In most accountancy statements this is a somewhat vague term, but it is used in control to establish the profit that is left when the exceptional expenses have been deducted from the factory surplus. The difference between the gross and the net trading profit will, therefore, be represented by the company overheads and the fixed charges.

Though in itself not of much value for control purposes, it may form a useful basis for comparison where several concerns are being brought together under one management. In practice, though, the factory surplus is the more directly informative figure.

#### ITEM NO. 15 (COMPANY OVERHEADS)

The term company overheads covers all those expenses which, not being factory oncosts or exceptional trading expenses, arise in the course of the selling activities and the general administration of the concern.

These expenses are subdivided as follows—

- (a) Selling expenses.
- (b) General charges.
- (c) Standing charges.

In the selling expenses category should be collected all expenditure whatsoever connected with or due to the selling of the goods. A portion of the managing director's salary will probably come in here: salesmen's salaries and commissions; advertising; entertaining; travelling expenses; special discounts; and so forth.

It is sometimes the practice to include bad debts as a selling expense. The theory is that such inclusion will tend to make salesmen more careful in ascertaining a prospective customer's credit standing before taking an order; against this it may be objected that the secretary or the chief accountant of the concern should not accept an order on behalf of his company until he is satisfied as to the financial soundness of the customer, and if he accepts the order, the onus of a bad debt should not lie on the salesman. The author does not feel qualified to decide so knotty a point, and the matter is best left to the decision of the managing director; the bad debt item

to be included either in selling expenses or general charges, as the managing director may think best.

Caution should be observed in the loading of the selling expenses with items of a working nature, such as packing, storage, loading, or dispatch. It occasionally happens that a works will deliver material to a warehouse which is under the control of the sales manager, and the expenses of running that warehouse will then be charged as selling expenses. In practice it is possible to come across circumstances ranging between a works dispatching to sales instructions, and a company which exists purely as a selling organization, and all the expenses of which, therefore, might be termed selling expenses.

For control purposes, however, the cost of the effort to effect sales should be kept separate from any other forms of expense chargeable to the sales department. Advertising or entertainment, for instance, is clearly due to the effort to effect sales. Warehousing, packing, or dispatching are ancillary services to the sales department, and not part of the effort to effect sales.

This splitting of sales department expenses has a further advantage for control purposes, in that it brings out clearly the expense of running the ancillary departments, and enables the managing director to watch these. In cases where service after sales is a heavy item, a special category can be created for this, and all service charges brought together. In some instances it will be found that a proportion of the service charges can properly be charged to factory oncost, if service expense is caused by faulty workmanship. Such a charge would then form an item in the general charges of the factory oncost.

The general and standing charges in the company overheads are similar in nature to the charges under the same denomination in the factory oncost. Standing charges cover rent, rates, taxes, insurance, and

depreciation of all buildings, fixtures, and fittings used for selling or administrative purposes; where works and head office are under one roof, a proportion will have to be settled.

General charges cover the whole of the remaining items not allocated to selling or standing charges, and will include the salaries, directors' fees, and other emoluments of the senior management, the salaries of the general office staff, etc., and the usually broad range of general expenses that arise in connection with the conduct of the concern.

Usually a short discussion with the secretary or the managing director will settle the incidence or the proportion of any uncertain items, and, once settled, they should be left in place without alteration except where drastic necessity arises, in order not to affect the comparative basis of the control.

#### ITEM NO. 16 (FIXED CHARGES)

Fixed charges cover debenture interest and other prior charges. These are shown as a separate item, instead of being included under the heading of company overheads, as they are usually of a stable nature, and no reduction can be made in them as turnover falls off. Moreover, they do not cover expenditure which is an essential part of the running of a company, nor does the category arise in all concerns.

There should be no fluctuations in this section unless the firm has been compelled to issue more debenture stock or has redeemed some of the debentures already issued. Fixed charges being interest payable on borrowed capital, changes in the monthly amounts charged can only arise from alterations in the capital concerned.

Such alterations should, however, be investigated in case an error in allocation has arisen.

## ITEM NO. 17 (NET TRADING PROFIT)

The net trading profit represents the result of the company's activities from trading. It is, therefore, of the utmost importance as a control figure, combining as it does the whole of the results of the manufacturing side and those of the administrative side of the business, leaving only sundry income not from trading and special charges to be accounted for at a later stage.

This figure assumes an equal importance with the factory surplus where it is desired to compare the results of two concerns of the same nature, and is more reliable for this purpose than the final profit, which is affected by the sundry income and also charges on closed sections which may not be common to both concerns.

## ITEM NO. 18 (SUNDRY INCOME, NOT FROM TRADING)

Sundry income represents income from investments of any nature and also rent from cottage property or land and buildings belonging to the company but leased to other individuals or concerns.

It is important that this item should be shown separately, and after the net trading profit of the company has been recorded; if it is included at an earlier stage, the percentage of net trading profit to sales turnover becomes unreliable, and no standard of efficiency can be set for the actual running of the concern.

## ITEM NO. 19 (NET PROFIT ON GOING CONCERN)

In the majority of companies this item is identical with the final profit, as it includes every item of income and expenditure which is normally to be found; but where a firm is burdened with derelict works or departments, these are included as a special charge, as is explained in the next paragraph, and are deducted from the net profit

on the going concern to ascertain the final profit which is carried to the balance sheet.

#### ITEM NO. 20 (SPECIAL CHARGES)

In certain concerns there are expenses that have no longer any real connection with the actual conduct of the business as a going concern. As the years pass policies change, and with them products and activities change as well. This often leads to sections of the original concern becoming derelict and so remaining a burden upon the existing business, although they do not contribute in any way to the turnover.

Again, it sometimes happens that a concern when starting up will acquire land or buildings which may be useful in future years, but from which for the time being no benefit can be derived. Such excess land or buildings naturally represent an expense on the business, but as they do not contribute in any way towards the turnover, their expense cannot be truly considered part of the going concern.

The segregation of these expenses from the normal expense of running the business is a very important side of the control, because it is quite possible for a concern to be operating actually at a profit as far as its turnover is concerned, and yet for that profit to be swamped by the additional expenses due to these outside burdens.

It is naturally true that the result at the finish is a loss in the company's accounts, but the difference between a loss in the company's accounts due to causes that are not connected with the running of the business and a loss directly arising from the running of the business is a very important one.

It must always be borne in mind that in control work the object in view is to present the managing director with a true picture of what is happening. If all these extraneous expenses are included in his general overheads,

all that he will know is that the result for the month is a loss. If, on the other hand, these additional or "special" charges are shown outside the accounts of the going concern, he will at any rate have the satisfaction of knowing that the active part of the business made a profit, even if that profit was subsequently turned into a loss by the special charges.

Knowing this would draw his attention directly towards seeing what steps could be taken to get rid of these special charges; for instance, it may be possible to let or sell the additional land or unused buildings. If the special charge represents a derelict works closed down on account of amalgamation, yet still retained on account of possible value, it may be possible by investigation to find some product that can be satisfactorily turned out in the old works, and so enable the burden of this charge to be adequately carried.

There is no reason why this principle of showing as a separate expense derelict or unused works or property should not be adopted to deal with individual shops in a large concern which have been put out of action through policy changes. At the same time caution must be exercised in dealing with these. For instance, if half a shop be empty on account of slackness in trade, it would not be sound policy to treat this half as a "special" charge when under normal conditions of trading that portion of the shop would be working. Such loss due to an empty shop would be represented by unabsorbed factory oncost, which would be a charge on the factory surplus. The right attitude is to consider whether a particular expense has any relation to the business as a going concern; if the answer is that it has nothing to do with the present trading activities of the company and could never be of assistance to those activities, then such expense can be legitimately treated as a "special" charge and be shown in a category outside the net profit made by the business.

## INCOME TAX

Certain firms make a practice of treating income tax as a fixed charge, which cannot be considered correct, as if no profits are made no income tax is payable.

For the same reason it is not sound practice to include it amongst overhead charges, and probably the best place for sums payable in income tax is amongst the special charges section.

Placing it here has the further advantage that if desired a reserve can be put in at an early stage in the proceedings, and adjusted as the year goes on, and in this manner, when the ultimate sum has to be paid, it will not come as a sudden reduction of the net profits for the period.

## ADJUSTMENTS

A later development which has proved of great practical value in the working of this control system has been the addition of a space for "adjustments" at the foot of the Statement of Account.

The best system of accounts can never prevent the occasional error or the sudden decision to make an alteration of some kind in the results recorded for a previous month. Any method of presenting facts based upon industrial accounts must possess a considerable degree of flexibility in order that these adjustments and modifications can be recorded as they arise without upsetting—or, at any rate, with the minimum of dislocation of—the comparative value of the monthly returns. Occasionally items of income and expenditure which actually refer to the previous year's trading have to be brought in, and owing to the carry-forward of the profit or loss figure from year to year in the balance sheet, these adjustments must be included in the current year, if that carry-forward is to be kept correct.



But to bring them into the results for the month in which the discovery was made would naturally lead to the presentation to the managing director of a figure of profit or loss which would not be due to the current month's working, but to the fact that this old credit or debit had had to be brought in. Other matters, such as a decision to write down the value of certain items of stock immediately, rather than wait until the end of the year in the customary and proper manner, will completely disorganize the current monthly results if they are included. An extreme case that occurred in the writer's experience was of an error discovered in the indirect labour figure for general labouring, and the accountant's original control return for the month showed a credit to this department instead of the normal monthly expense of some £200. As it seemed to the writer unlikely that the general labourers had not only worked for nothing during the month, but had apparently made a contribution towards the funds of the concern, an inquiry was made which elicited the reply that an error had been found in the results presented five months ago, which was now being rectified. It had not apparently occurred to the accountant that any harm was done by not including the actual figure of expenditure under the category of general labouring for the month.

For items of this nature, and, in fact, for any adjustments, corrections, or expenses not referring to the month under review, this section of Adjustments is provided at the foot of the Statement of Account. It thus becomes possible for the results for the month to be correctly stated, and for the managing director to be notified that an adjustment has been found necessary, and that his ultimate profit will have to be reduced by the amount stated, owing to an unexpected cause.

The adjustment section is included in the cumulative

and moving annual total Statement of Account in the same manner, since there may be—and should be—no adjustments in a current month, but the cumulative result for, say, nine months will naturally carry the cumulative figure of all the adjustments that have been found necessary. Thus by studying the Statement of Account showing the cumulative result for the period since the beginning of the present financial year, the managing director will have before him the actual trading results for the period, and at the same time be able to see clearly what adjustments have come to light and will have to be included in the audited results at the end of his financial year.

It would be more correct if these adjustments were only taken into the cumulative figures for the period, and not shown in the month in which they were made. This would, however, cause subsequent difficulties in keeping current, cumulative, and moving annual totals in step with each other.

#### THE BOARD RETURNS

The board returns dealing with the trading position, and matters relevant to it, would conveniently be as follows—

- B.R. 2. Statement of account (current monthly result).
- B.R. 3. Statement of account (cumulative result for period).
- B.R. 4. Statement of account (twelve-monthly period, compared with result of last financial year).
- B.R. 5. Expenditure analysis.
- B.R. 6. Sales analysis summary.
- B.R. 7. Stock position.

B.R. 2. The statement of account dealing with the current monthly result has been explained in detail in the foregoing pages.

B.R. 3. Repeats B.R. 12, but presents the cumulative results for the period that has elapsed since the end of the last financial year. This is apt to be useful when the lower portion of the return is under consideration, as fluctuating profits and losses tend to confuse the position, and the managing director usually wishes to know how he stands after the passage of a number of months.

In most systems of accountancy it is the cumulative figure that is emphasized. B.R. 2, the current result, should always be put forward, however, as the cumulative method is apt to hide losses or sudden increases in expenditure which only become apparent when the current figures are got out. Incidentally, the cumulative method of presenting figures is a convenient camouflage for errors, adjustments being made without attention being drawn to them, with a hundred-to-one chance of their escaping unnoticed.

B.R. 4. The twelve-monthly result to date compared with the result at the end of the previous financial year, may be thought by some to be unnecessary. It can be omitted if desired, but there is a very definite management value in comparing the moving annual total for each item at the moment with the figure achieved at the end of the previous year. It tells the managing director how much leeway he still has to make up, or how much improvement he has to consolidate, in the remainder of the current year.

B.R. 5. The statement of account shows only the primary headings of expense and income. It is necessary to extend those headings so as to show how each category of expense is made up. B.R. 5 does this, and in the form shown here the current figure is given, the moving annual total of that figure, and the result at the end of the last financial year. In this way any items which are exceeding last year's result can be indicated, and an attempt made

to reduce them. B.R. 5 may possibly extend to several sheets, marked B.R. 5(A), 5(B), 5(C), etc. If it be considered that this entails too much paper to set before the board, the whole of B.R. 5 can be kept back by the secretary, and be held ready for the managing director's personal perusal. Such sheets, however, are necessary to show where the fluctuations in expense have arisen, and the reader, having noted a net profit of £15,634 for the twelve months ending October compared with a net profit of £62,821 for the previous year, will find it is simple enough to say how that change has come about with B.R. 5 at his disposal for the purpose of explanation.

B.R. 6. Sales analysis summary. In this return the manufacturing cost of the items is shown against the sales price, the difference being the gross factory surplus or deficit, which is also shown as a percentage on the cost.

The items can be arranged as desired, either as individual jobs or as classes of product, or in any way that is most helpful to the managing director.

This sheet is of importance to the managing director, as it gives the actual figures for material, labour, and recovered oncost included in the sales turnover. This does not appear in the statement of account, as the figures for material, labour, and oncost set out there are those covering the *expenditure* under these three headings for the whole month, a portion of which may be included in the figures for stocks and work-in-progress at the end of the month.

Many firms have no difficulty in closing their books each month, and producing the Statement of Account and the detail expenditure records, but the cost-accounting section cannot prepare the sales analysis summary so promptly, since the cost records may be far from complete when the job passes through the sales ledger. In such cases B.R. 6 should cover all jobs closed and costed

during the period, irrespective of when they passed through the sales ledger. This only means that the total of B.R. 6 will not correspond with the correct sales turnover for the month under review; it will, just the same, provide the managing director with a cost summary covering a certain period. At the close of the year the cost summary can be brought into line with the rest of the control figures.

The balancing statement at the bottom of the sheet will be noticed. This is of some value, as it shows the amount of gross factory surplus made on the work done, and the extent to which that gross surplus is increased or decreased by the over- and under-absorption of the factory oncosts.

Where the concern is working below normal capacity it will frequently be found that an "actual" surplus has been made on such work as has been done; but the unabsorbed oncosts turn this "actual" surplus into a deficit. It is, however, only fair to the works manager to make clear that his efforts are producing a surplus on the work that has gone through, as it is probably not his fault if the place is working below capacity with oncosts that cannot be any further reduced. Incidentally, this statement lays emphasis on unabsorbed oncosts where they exist, and so gives the managing director a definite figure from which he can start any investigation regarding possible reduction.

B.R. 7. Stock position. This sheet should give a clear statement of the position of all process stocks and expense stocks at the end of the month, showing the increase or decrease since some previous date. In most instances the work-in-progress is analysed too, but it is sometimes found that this entails too much of a burden on the accounts department for the results to be worth while. It is, however, wise to include this wherever possible. It is impossible to standardize a form of stock

return adaptable to all purposes. Each concern must be provided with a special form suitable for itself, the essential principle being borne in mind that a regular monthly return of stocks shall be made, so that increases or decreases can be watched. The term "expense stocks" is used to denote such items as fuel which are necessary for the manufacture of the goods sold, but do not contribute to their actual make-up in any way.

It should always be remembered that the control must show the complete picture of what is going on, but that any attempt to make that picture too complete in detail will spoil the effect of the whole. At the back of the primary control figures must always be the secondary figures from which the control is built up, and it can be taken as good practice to overhaul certain of these items every month so as to make sure that no unexpected expense is growing up, compensated by another item which is decreasing in the one group. If an increase in an item of expenditure does arise, this will almost certainly be shown by the increase of the primary figure in the control. After two or three increases have been noticed, the group can be analysed in order to find out which individual account is causing the trouble.

There is one point in connection with these grouped expenses which may perhaps be mentioned here, as it emphasizes the value of this method of control. It is very seldom that expenses of this nature can be brought to light until three or four weeks have elapsed. Moreover, even in a small concern the number of individual accounts is usually large, and under the old methods such accounts appear as a long unbroken column of results in the profit and loss account, often with an additional column recording the percentage of each item to the total.

These individual accounts—and therefore the percentages—always fluctuate from period to period, and as one studies them it is most difficult to appreciate whether the fluctuations are justifiable or not, without investigation of each item. It is impossible to avoid the feeling that the expenditure is already nearly a month old, and that little purpose will be served by investigating the reasons why some expense has occurred so long ago.

In fact, those who have had experience in endeavouring to control expenditure under these conditions will realize the truth of Touchstone's remark where he speaks of the matter that "strikes a man more dead than a great reckoning in a little room." The impossibility of controlling what has already taken place has such a deadening effect upon even the best efforts to reduce expenditure that there is a strong tendency to let the whole thing slide.

For this reason, therefore, there is a great advantage in reducing these individual accounts to a number of groups, each of which constitutes an item in the control. The trends of these groups can then be watched without much difficulty, and any rising trend can be tackled and investigated. In other words, it is far better to keep guard over a few groups than to lose touch completely with the perpetual fluctuations of a large number of individual items.

### THE SALES POUND

It will be noticed that the right-hand column of board returns Nos. 2, 3, and 4 is headed "percentage of sales," and that it is indicated that the cost of manufacture plus the exceptional trading expenses plus the company overheads plus the fixed charges plus the net trading profit go to make up 100 per cent of the sales turnover, and that if these are added together their cash value will equal the sales turnover.

The sundry income and special charges are not included

in this, as they are extraneous income and expenditure which have contributed in no wise to the manufacture or sale of the goods which form the sales turnover.

Every £1 of sales is made up of a certain proportion of each of the four main categories of expense plus a certain amount of profit. If these items are expressed in actual money values there is no easy means of controlling the fluctuations, as it is difficult to compare, say, the rise in the turnover with the rise in cost of manufacture. But if these figures are expressed as a percentage of the total sales turnover, a basis for comparison is immediately obtained, and "normals" can be set to which the five components of the sales pound should adhere.

The principal use of the sales pound percentages is to create limits to the four main categories of expense after the profit portion has been settled. In the example given in Chapter IV, Mr. Robinson's Sales Pound (see Fig. 15) would have been composed of—

	%	s.	d.
Cost of Manufacture . . . . .	67·5	or 13	6
Exceptional Trading Expenses . . . . .	0·6		1½
Company Overheads . . . . .	18·9	3	9½
Fixed Charges . . . . .	—		
Profit . . . . .	13·0	2	7½
	<hr/>	<hr/>	<hr/>
TOTAL . . . . .	100·0%	20	—

Using this method makes it easy to see that if the expenses can be reduced there is more left for profit. If 3d. can be got off the cost of manufacture and 2d. off the company overheads the profit on every pound of sales will be 3s. 0½d. instead of 2s. 7½d.

It does not seem to be sufficiently appreciated by many of those who move in industrial circles that the only important expenses which fluctuate in phase with the sales turnover are the direct material and labour. Certain minor charges fluctuate directly, but are too small to have any real influence on the position. Oncosts and



overheads move very much more slowly, whilst standing and fixed charges do not move at all. It is therefore of extreme importance to the managing director to know how those expenses figure in every £1 of sales when his sales turnover is normal.

He aims at making a certain profit, which he can only obtain when his sales exceed his expenditure by that amount. If he does not succeed, the failure will be due to the expenditure being relatively too high for the sales turnover obtained. Some portion of the expenditure must therefore be reduced—but which? The sales pound make-up gives him an indication as to where to turn his attention, showing as it does the primary classes of expenditure as a percentage of the turnover.

Prime cost reduction is the most fruitful source of saving, as a saving on an operation or in material quantity or weight is repeated as often as the piece is made; hence, a saving small in itself may represent a respectable sum in the course of the year. One firm, for instance, by economizing  $\frac{1}{8}$  in. in the material used to make a carton, saved the cost of seventy miles of millboard annually. In the same way, a minute or two economized in direct labour by the use of an improved jig or fixture rapidly mounts up to a sum worth saving. There are very few concerns whose manufacturing lay-out is so perfect and whose buying arrangements so keen that no economies at all can be obtained.

Factory oncost reduction is usually a case of watching more carefully the service departments and controlling the money being expended in indirect ways.

Exceptional trading expenses should not be large enough in any case to have much bearing on the problems; but limits can always be set to these unusual expenditures, and so some help towards economy obtained.

Company overhead reduction usually means drastic

STATEMENT OF ACCOUNT  
CURRENT

OCTOBER, 1937

B.R. 2

Item		£	£	£	Per-centage of Sales
1	SALES TURNOVER . . . . .			35,577	
2	COST OF MANUFACTURE				
3	Process Stocks at 1/10/37 . . . . .	26,832			
3	Work-in-progress at 1/10/37 . . . . .	28,991			
			55,823		
4	Direct Material . . . . .	16,038			
5	Direct Labour . . . . .	5,426			
6	Factory Oncosts recovered . . . . .	5,658			
			27,122		
			82,945		
	<i>Deduct:</i> . . . . .				
7	Process Stocks at 31/10/37 . . . . .	30,372			
8	Work-in-progress at 31/10/37 . . . . .	26,552			
			56,924		
			26,021		
9	<i>Add:</i> F.O. under recovered . . . . .		383		
10	<i>Deduct:</i> F.O. over . . . . .		—		
11	COST OF GOODS SOLD . . . . .			26,404	74.2
12	FACTORY SURPLUS/ <del>Deficit</del> . . . . .			9,173	
13	<del>Add/Deduct:</del> Exceptional Trading Expenses . . . . .			98	0.3
	Representing:				
14	A GROSS TRADING PROFIT/ <del>Loss</del> . . . . .			9,075	
	<del>Add/Deduct:</del> . . . . .				
15	Company Overheads . . . . .		9,102		25.6
16	Fixed Charges . . . . .		500		1.4
				9,602	
	Representing:				
17	A NET TRADING <del>Profit</del> /Loss . . . . .			527	- 1.5
					100.0
	<del>Add/Deduct:</del> . . . . .				
18	Sundry Income, not from Trading . . . . .			—	
	Representing:				
19	A NET <del>Profit</del> /Loss on Going Concern . . . . .			527	
	<del>Add/Deduct:</del> . . . . .				
20	Special Charges . . . . .			416	
	Representing:				
21	A FINAL <del>Profit</del> /Loss . . . . .			943	

SUBJECT TO THE FOLLOWING ADJUSTMENTS:

	Debit	Credit
(a) Error in General Labouring—		
Item (May) . . . . .	273	—
Total Adjustments, Debit of . . . . .		273
Hence, adjusted result for October, Loss of . . . . .		£1,216

FIG. 24

**STATEMENT OF ACCOUNT  
CUMULATIVE  
TEN MONTHS ENDING OCTOBER, 1937**

**B.R. 3**

Item		£	£	£	Per-centage of Sales
1	SALES TURNOVER . . . . .			305,689	
2	COST OF MANUFACTURE				
3	Process Stocks at 1/1/37 . . . . .	25,217			
3	Work-in-progress at 1/1/37 . . . . .	35,015			
			60,232		
4	Direct Material . . . . .	115,494			
5	Direct Labour . . . . .	43,114			
6	Factory Oncosts recovered . . . . .	49,044			
			207,652		
	<i>Deduct:</i>		267,884		
7	Process Stocks at 31/10/37 . . . . .	30,372			
8	Work-in-progress at 31/10/37 . . . . .	26,552			
			56,924		
			210,960		
9	<i>Add:</i> F.O. under recovered . . . . .		—		
10	<i>Deduct:</i> over . . . . .		340		
11	COST OF GOODS SOLD . . . . .			210,620	69·0
12	FACTORY SURPLUS/ <del>Deficit</del> . . . . .			95,069	
13	<i>Add/Deduct:</i> Exceptional Trading Expenses . . . . .			2,290	0·8
14	Representing: A GROSS TRADING PROFIT/ <del>Loss</del> . . . . .			92,779	
15	<i>Add/Deduct:</i> Company Overheads . . . . .		91,717		29·9
16	Fixed Charges . . . . .		4,708		1·5
				96,425	
17	Representing: A NET TRADING <del>Profit</del> /Loss . . . . .			3,646	- 1·2
					100·0
18	<i>Add/Deduct:</i> Sundry Income, not from Trading . . . . .			100	
19	Representing: A NET <del>Profit</del> /Loss on Going Concern . . . . .			3,546	
20	<i>Add/Deduct:</i> Special Charges . . . . .			4,166	
21	Representing: A FINAL <del>Profit</del> /Loss OF . . . . .			£7,712	

**SUBJECT TO THE FOLLOWING ADJUSTMENTS:**

	Debit	Credit
Already recorded . . . . .	£117	£1,242
For October—		
(a) Error in General Labouring Item (May)	273	—
Total Adjustments . . . . .	390	1,242
		390
Credit of . . . . .		852
Hence, adjusted result, ten months to October—		
Loss of . . . . .		£6,860

FIG. 25

**STATEMENT OF ACCOUNT**  
M.A.T.  
**TWELVE MONTHS ENDING OCTOBER, 1937**

**B.R. 4**

Item		OCTOBER, 1937				DECEMBER, 1936	
		£	£	£	Per-centage of Sales	£	Per-centage of Sales
1	SALES TURNOVER			388,606		444,789	
2	COST OF MANUFACTURE						
	Process Stocks at 1/11/36	25,885					
3	Work-in-progress at 1/11/36	37,113	62,998				
4	Direct Material	143,260					
5	Direct Labour	50,917					
6	Factory Oncosts recovered	58,385					
			252,562				
7	Deduct: Process Stocks at 31/10/37		315,560				
8	Work-in-progress at 31/10/37	30,372					
		26,552		56,924			
			258,636				
9	Add: F.O. under recovered						
10	Deduct: over		324				
11	COST OF GOODS SOLD			258,312	66.5	277,481	62.3
12	FACTORY SURPLUS/ <del>Expense</del>			130,294		167,308	
13	Add/Deduct: Exceptional Trading Expenses			2,582	0.6	2,027	0.4
14	Representing: A GROSS TRADING PROFIT/ <del>Loss</del>			127,712		165,281	
15	Add/Deduct: Company Overheads		107,137		27.6	100,460	22.7
16	Fixed Charges		5,125		1.3	2,500	0.6
				112,262			
17	Representing: A NET TRADING PROFIT/ <del>Loss</del>			15,450	4.0	62,321	14.0
					100.0		100.0
18	Add/Deduct: Sundry Income not from Trading			184		500	
19	Representing: A NET PROFIT/ <del>Loss</del> on Going Concern.			15,634		62,821	
20	Add/Deduct: Special Charges			5,000		5,000	
21	Representing: A FINAL PROFIT/ <del>Loss</del> OF			£10,634		£57,821	

SUBJECT TO THE FOLLOWING ADJUSTMENTS:

M.A.T. of adjustments, credit of . . . £ 1,503

Hence, adjusted M.A.T. result, profit of . . . 12,137

1,798 credit

59,619 profit

FIG. 26

## EXPENDITURE ANALYSIS (I)

OCTOBER, 1937

B R 5(A)

	October 1937	M A T 31/10/37	M A T 31/12/36
<b>DIRECT MATERIAL</b>	£	£	£
1. Raw Materials	8,115	72,017	80,212
2 Semi finished Materials	1,612	13,998	17,339
3 Finished Goods	6,311	57,245	74,813
<b>TOTAL</b>	16,038	143,260	172,364
<b>DIRECT LABOUR</b>			
1. Skilled	3,107	29,123	30,661
2 Semi skilled	2,163	19,919	20,111
3 Apprentices	156	1,875	1,901
<b>TOTAL</b>	5,426	50,917	52,673
<b>TOTAL PRIME COST</b>	£21,464	£194,177	£225,037
<b>FACTORY ONCOST</b>	£	£	£
<b>1 INDIRECT MATERIAL</b>			
(a) Electric Power	581	5,326	5,897
(b) Water	44	752	874
(c) Gas	48	406	501
(d) Consumable Stores	186	1,501	1,843
(e) Drawing Office Material	48	407	623
(f) Stationery and Printing	38	492	537
<b>TOTAL</b>	985	8,892	10,275
<b>2 INDIRECT LABOUR</b>			
(a) Supervision	582	7,032	7,431
(b) Shop Clerical Staff	188	1,744	1,982
(c) Timekeeping and Wages	96	1,043	1,248
(d) General Labouring	315	2,849	3,149
(e) Inspection	272	2,607	2,943
(f) Storekeeping	132	1,377	1,440
<b>TOTAL</b>	1,585	16,652	18,193
<b>3 GENERAL CHARGES</b>			
(a) Salaries Management	610	7,680	7,200
(b) National Health Insurance	113	1,531	1,688
(c) Overtime and Night Rate	33	291	625
(d) Defective Work	40	277	303
(e) Repairs and Maintenance, Plant	673	5,574	6,319
(f) Repairs and Maintenance Buildings	85	756	939
(g) Internal Transport	61	504	687
(h) Experimental Work	760	4,210	6,135
(i) Sundry Freights	58	538	749
(j) Travelling Expenses	54	611	713
(k) Miscellaneous Expenses	121	1,165	1,401
<b>TOTAL</b>	2,691	23,157	26,759
<b>4 STANDING CHARGES</b>			
(a) Rates and Taxes	146	1,750	1,125
(b) Insurance	88	1,060	898
(c) Depreciation	546	6,550	5,290
<b>TOTAL</b>	780	9,360	7,313
<b>TOTAL FACTORY ONCOST</b>	£6,041	£58,061	£62,540

## EXPENDITURE ANALYSIS (2)

OCTOBER, 1937

B R 5(B)

	October 1937	M A T 31/10/37	M A T 31/12/36
<b>COMPANY OVERHEADS</b>			
<b>1 SELLING EXPENSES</b>	£	£	£
(a) Sales Manager's Salary	210	2 500	2,500
(b) Assistant Manager's Salary	83	1 000	1,000
(c) Sales Office Staff	230	2 750	2,750
(d) Salesmen's Salaries and Commissions	1,766	21 310	18,026
(e) Advertising	1 333	15 750	13,515
(f) Travelling Expenses	272	2,875	2 520
(g) Entertaining	296	3,125	2,875
(h) Miscellaneous Expenses	210	1 073	1,896
<b>TOTAL SELLING EXPENSES</b>	<b>4,400</b>	<b>51,283</b>	<b>45,082</b>
<b>2 GENERAL CHARGES</b>			
(a) Directors' Fees	362	4 350	4,350
(b) General Management Salaries	1 275	15 300	15,300
(c) Office Staff Salaries	688	8 255	7,505
(d) Stationery	323	3,812	3,516
(e) Postage	161	1 376	1,245
(f) Telephones	75	827	775
(g) Travelling Expenses	232	2 820	2,817
(h) Legal Expenses	115	1,385	1,450
(i) Audit and Accountancy Charges	105	1,250	1,250
(j) Bank Charges	—	1,262	1,900
(k) Lighting and Heating	65	595	550
(l) Bad Debts	333	4 815	4,250
(m) Miscellaneous Expenses	285	1,607	2 270
<b>TOTAL GENERAL CHARGES</b>	<b>4 019</b>	<b>47,654</b>	<b>47,178</b>
<b>3 STANDING CHARGES</b>			
(a) Head Office, Rent, Rates and Taxes	154	1 850	1 850
(b) Head Office, Insurance	104	1,250	1 250
(c) Head Office, Depreciation	425	5 100	5 100
<b>TOTAL STANDING CHARGES</b>	<b>683</b>	<b>8,200</b>	<b>8,200</b>
<b>TOTAL COMPANY OVERHEADS</b>	<b>£9 102</b>	<b>£107,137</b>	<b>£100,460</b>

FIG 28

## EXPENDITURE ANALYSIS (3)

OCTOBER, 1937

	October 1937	M A T 31/10/37	M A T 31/12/36
<b>FIXED CHARGES</b>	£	£	£
<b>1 Interest on 5% Debenture Stock</b>	500	5 125	2 500
<b>SPECIAL CHARGES</b>			
<b>1 Charges on Closed Works</b>	255	2 892	1,574
<b>2 Income Tax Reserve</b>	161	2 108	3,426
<b>TOTAL</b>	<b>£416</b>	<b>£5 000</b>	<b>£5 000</b>
<b>SUNDRY INCOME ANALYSIS</b>	£	£	£
<b>1 Interest on Investments</b>	—	184	500

FIG 29

# SALES ANALYSIS SUMMARY

MONTH OF OCTOBER, 1937

B.R. 6

	Cost				Sales Price	Result		Percent- age of Surplus Oncost
	Material	Labour	Oncosts Recovered	Total		Surplus	Def.	
(a) 1. Agricultural Machinery . (b) 2. Internal Combustion Engines . (c) 3. Miscellaneous . TOTAL .	£	£	£	£	£	£	£	%
	4,003	1,424	1,472	6,899	7,413	514	—	7.4
	5,847	1,823	1,667	9,337	16,010	6,673	—	71.5
	5,800	2,085	1,900	9,785	12,154	2,369	—	24.2
	£15,650	5,332	5,039	26,021	35,577	9,556	—	36.7%

Manufacturing Cost, as above, for month . . £26,021; for period . . £210,960

Add: Oncosts under recovered for month . . 383; for period . . —

Deduct: Oncosts over . . — 340

Hence, TOTAL Cost for month . . 26,404; for period . . 210,620

SALES TURNOVER for month . . 35,577; for period . . 305,689

Hence, FACTORY  $\frac{\text{SURPLUS}}{\text{DEFICIT}}$  for month . £9,173; for period . . £95,069

FIG. 30

# STOCK POSITION

MONTH OF OCTOBER, 1937

B.R. 7

	Finished Machines	Finished Parts	Work-in- Progress	Rough Material	Total	Variation from 31st Dec., 1929	
						Increase	Decrease
PROCESS STOCKS							
1. Agricultural Machinery . . .	£ 12,922	£ 2,213	£ 15,106	£ 3,101	£ 33,342	£ —	£ 5,153
2. Internal Combustion Engines . . .	7,425	2,999	11,083	1,437	22,944	1,732	—
3. Miscellaneous . . .	—	217	363	58	638	113	—
TOTAL . . .	£20,347	5,429	26,552	4,596	56,924	1,845	5,153 1,845 3,308
EXPENSE STOCKS							
1. Coal . . .	. . .	. . .	. . .	. . .	£ 1,540	£ 96	£ —
2. Coke . . .	. . .	. . .	. . .	. . .	125	—	31
3. General Stores . . .	. . .	. . .	. . .	. . .	225	17	—
TOTAL . . .	. . .	. . .	. . .	. . .	£1,890	113 31 — 82	31

Fig. 31



action of one kind or another. Where clearly necessary, it should be undertaken with great care and with all due regard for the commercial efficiency of the concern as a whole.

Fixed charges usually cannot be reduced.

In this way the sales pound percentages can help the managing director to take action in the most profitable direction.

It is important that a sales pound chart should be shown in both the current monthly and moving annual total results.<sup>1</sup> While it is of very great interest to watch the actual monthly fluctuations in the sales pound percentages with a view to taking action before too long a period has elapsed if anything appears to be going wrong, where a business is subject to wide seasonal fluctuations it is likely that the monthly percentages may prove disturbing if considered as isolated cases. But the use of the trend principle overcomes this difficulty, and the percentages assume their true proportion in the working of the concern in question.

The sales pound method of checking results can be extended, if desired, by subdividing the four categories of expense—or some of them. Thus, the cost of goods sold can be subdivided into its component parts, and the company overheads also, with advantage. This splitting method enables broad checks to be used, and avoids those quantities of small items which are so difficult to control.

<sup>1</sup> See Fig. 46.

## CHAPTER IX

### THE FINANCIAL POSITION

THE normal aim of any commercial undertaking being the making of profits, it is only natural that considerable interest should be taken in the disposal of those profits in such a way that they not only provide a fair return to the investor on his money, but also increase the profit-making potentiality of the firm itself.

The financial figures of a company have a direct bearing in measuring the management efficiency of the organization, as they reflect the success or failure with which the duties of the staff as a whole have been carried out. Consequently no system of control would be complete without an analysis of this side of the picture.

To obtain a true idea of the actual financial position of a going concern at any time is a most difficult and complex matter, and only an individual with a long experience in company accounts and the handling of industrial finance could be expected to deal with the task with ease. Most men who are carrying the responsibility of directing an industrial undertaking, especially in the case of the smaller concerns, have had little opportunity, in their constant struggle against the intricacies of business dealings, of becoming expert on the financial side. As this book is intended to simplify on the statistical side—in so far as it can be done—the task of the managing director, little purpose would be served by endeavouring to develop at length the more complex side of industrial finance. In the few pages that follow, an attempt has been made to pick out only those few items which can be of real assistance to any managing director—items which, if recorded

month by month, will tell him the direction in which his affairs are moving.

Possibly the chief reason for the relatively slow development of this side of management control in the past has been the inadequacy of the form in which these financial statistics have been presented. The Companies Act of 1929 did something to remedy this by insisting on the adherence to certain definite categories upon the balance sheet and by rendering the lumping together of some non-allied items contrary to law. But the improvements demanded under this Act, though they did much to safeguard the investor, have been of slight assistance to the manager in assessing the position of the company under his guidance. Some of the information that he requires may be found in the standard form of balance sheet—in so far as there is a standard form—but its arrangement is such that numerous calculations are called for before that information becomes of practical use.

A concrete example will illustrate this most effectively, and a balance sheet of a simple nature is shown opposite, presented first in its usual form.

This type of "horizontal" balance sheet is open to several criticisms on the part of the manager, and has, in fact, not been designed with a view to helping him to carry out his duties in the most effective way.

This normal form states first, on the liability side, the issued capital of the company, passes on to the debenture stock (if any), reserves, sundry creditors, and any other liabilities of any kind whatsoever, and ends with the profit and loss account credit balance. No effort is made, however, to distinguish between the actual liabilities of the company and the total capital employed or net worth.

The treatment of the asset side of the usual balance sheet varies considerably, as it either sets out first the fixed assets in which the issued capital is invested, and

**BALANCE SHEET (Old Form)**  
**AT 31ST OCTOBER, 1937**

LIABILITIES		ASSETS	
	£		£
<b>Capital Authorized and Issued—</b>			
290,000 Ordinary Shares of £1	290,000	Land and Buildings	£124,667
50,000 5% Preference Shares of £1	50,000	Less: Depreciation	2,590
			<u>122,077</u>
5% Debenture Stock	120,000	Plant and Machinery	£148,349
		Less: Depreciation	3,460
Sundry Creditors	93,463		<u>144,889</u>
Reserve Account	10,000	Goodwill	100,000
Profit and Loss Balance—		Investments at Cost	10,601
Balance Brought Forward	£80,066	Stocks and Work-in-Progress	56,924
Less: Loss for Ten Months	7,712	Sundry Debtors	189,988
	<u>72,354</u>	Cash in Hand and at Bank	11,338
			<u>£635,817</u>

Fig. 32

then proceeds to state the other assets in decreasing order of permanency; or else it inverts that order, and beginning with cash in hand it states the other assets in the order in which they can be most readily realized.

It cannot be repeated too often that management is based on comparison, and a balance sheet of this type, giving, as it does, only a static view of the company's position, fails to provide that basis for comparison which is so essential to good management.

Of the two arrangements of the assets the former is the more logical, if the old form of showing the liabilities is adhered to, as it does contrast side by side the permanent capital with the permanent assets; but from the point of view of the manager this is not particularly illuminating, as he is more interested in the fluctuating items. The new horizontal form suggested here strives to set out the information to be found in the usual balance sheet in a manner more likely to be of practical assistance to the managing director.

The first question likely to be asked by the managing director is: "Are my liquid resources sufficient to cover my immediate liabilities?" and the new form of balance sheet first answers that question and then shows the remaining items in a logical order.

From Fig. 32, in which the previous balance sheet has been arranged in the suggested improved manner, it will be seen that the most pressing liabilities are set out alongside the current resources, i.e. the current liabilities side by side with the current assets, as under normal circumstances current liabilities have to be met by current assets. Furthermore, the excess of the one over the other is emphasized by the inclusion of the figure of working capital available and the ratio of current assets to current liabilities.



The working position of the company having been illustrated as clearly as possible in a few lines, the remaining assets are then shown in the order in which they can be most easily realized, passing by degrees to those assets which may have no commercial value at all under certain conditions. Moreover, a distinction is drawn between current assets, fixed assets, and intangible assets (fictitious assets being treated as a deduction from net worth), while the liabilities are also recorded under their main categories. This is naturally implied in the older balance sheet, but the insertion of the names of the categories adds to the clearness of the picture and also to the speed with which the information can be assimilated.

On the liability side the long-term liabilities, such as debenture stock and mortgages, are then shown. It is not always an easy matter in balance-sheet analysis to distinguish between current and long-term liabilities, but little difficulty should be experienced by the accountant in settling this when he prepares the balance sheet, as he must, of necessity, have an intimate knowledge of the nature of all such liabilities and the date at which they must be met. As a general rule liabilities which have to be met within the limit of the financial year or shortly after its conclusion may be taken as "current"; loans falling due within, say, five years may be classed as "medium-term" liabilities, debentures, etc., of longer standing being counted as long-term liabilities. The introduction of this item of medium-term liabilities is important, as it prevents the sudden transference of long-term liabilities to the current category without due warning to the manager. Moreover, as it is a matter of great import to the manager that he should know exactly what liabilities mature shortly after the conclusion of the financial year for which he must make provision in all his calculations, it is deemed advisable to split this category

of medium-term liabilities into two sections, the first covering the year or eighteen months immediately following on the current financial period, and the second the remaining period up to five years.

In this connection it should be noted that certain debentures which do not mature for a considerable period of time may be redeemable at the option of the company much within that period, and this point should be brought out on the balance sheet, so that no doubt is left in the manager's mind as to how he stands.

The question here arises as to the position to be occupied on the balance sheet by specific tied reserves. Where possible these should be shown as deductions from the particular asset to which they refer, but in certain cases this is not practicable, and then they should be shown either as medium-term or long-term liabilities.

This concludes the liabilities owed by the company, and the balance sheet then proceeds to a statement of the net worth of the firm.

It will be seen that the net worth is made up of the issued capital, any general reserves and the balance of the profit and loss account at the date of the balance sheet; and here another point in favour of the new form of balance sheet appears, in that a debit profit and loss balance—which cannot in any way be considered an asset to a company—no longer shows as an asset in the balance sheet, but in its true position as a deduction from the net worth of the firm.

Net worth has been termed also the “shareholders’ equity” and “effective capital,” the difference in the terms depending upon the point of view from which the net worth is being considered. Actually net worth is the difference between the total assets and the total liabilities, and hence, in the event of the closing down of the company,



assuming that the assets realize their book value, it represents the sum available for distribution to the shareholders, and so may be considered as the shareholders' equity. On the other hand, if the business is to be carried on, it represents the total capital actually employed, as it includes the original capital and additions due to profits that have accumulated throughout the existence of the business; thus it may be fairly described as the effective capital. But in view of the fact that "shareholders' equity" and "effective capital" are terms somewhat limited in their implication, it is probably preferable to call this difference between the assets and the liabilities "net worth," as this term implies the actual amount that the company is worth, after meeting all liabilities.

As the natural tendency is to compare each month's results with those of the previous financial year, the new balance sheet form includes not only the present results and those at the end of the past year, but a column showing increases and decreases from the latter date. It may be contended that this is hardly necessary, but as it simplifies the reading of the balance sheet, it is worth the few moments' extra calculation and typing involved.

One of the greatest advantages of the new form is, however, the addition of the two columns of percentages, for the current results and the end of the previous year. Each item on the balance sheet is expressed as a percentage of the total assets, and where these assets fluctuate widely the inclusion of these percentages is most important. For instance, sundry creditors may rise during a period from £100,000 to £150,000, and if the total assets have remained steady at about £700,000 this rise is indicative of a need for careful investigation; on the other hand, if the total assets have also risen to £1,250,000 the £150,000 of sundry creditors only represents 12 per cent of the total, as against 14 per cent at the beginning of the

period, and so despite a rise of £50,000 in the sundry creditors, the position can only be regarded as extremely satisfactory.

Yet another form of balance sheet has been adopted in the statement of assets and liabilities to be used with the standard control board returns. This vertical form includes all the special features of the new horizontal balance sheet, except that it does not permit of the current assets and current liabilities being shown side by side. It has been arranged in this way in order to facilitate typing and the avoidance of the use of extra large sheets in the making up of the board returns month by month.

If the information contained in the balance sheet is to be used as an additional check on management efficiency, some series of gauges of that efficiency must be established, and for this purpose it has been found that the simplest method is the combination of various items as ratios. Any item can be divided by another item and the result expressed as a ratio; but in control some of these would be of little practical assistance, and the use of ratios should be strictly limited, if confusion is to be avoided. For the sake of clarity these ratios should be shown as line charts, and two sheets of foolscap are usually sufficient to accommodate the necessary information.

Before passing on to a description of the financial ratios suggested for use in connection with control work, it may be as well to set out a series of definitions of the various terms employed. It will be found that in the numerous books dealing with balance sheet analysis the same term may be used with a slightly different meaning, and as this is likely to lead to confusion in the reading of these pages, the following definitions are set out to overcome this difficulty. It is not claimed that they must necessarily be

adopted as standard by all who embark upon a study of their balance sheet position on the lines suggested.

### DEFINITIONS

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"Liquid Assets" here mean	. .	Cash and easily realizable assets Cash at bank and in hand Sundry debtors Bills receivable Readily marketable securities, i.e. investments having a Stock Exchange quotation
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"Current Assets" here mean	. .	Liquid assets, plus— Stocks Work-in-progress Investments in private com- panies
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"Fixed Assets" here mean	. .	Assets which are not held for the purpose of re-sale Land Buildings Plant and machinery Office fixtures Investments in subsidiary com- panies
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"Intangible Assets" here mean	. .	Assets which may have a value while the concern is working or if it is sold as a going con- cern, but which have no com- mercial value if the firm is closed down Goodwill Patent Rights
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"Fictitious Assets" here mean	. .	Items which are usually shown as assets on the balance sheet, but which have no value at all to the firm concerned, and which should be written off over a period of years Preliminary expenses Discount on debentures
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## DEFINITIONS—(contd.)

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"Current Liabilities" here mean . Liabilities which have to be met in the course of the financial year, or shortly after its conclusion  
 Sundry creditors  
 Dividends declared, but not yet paid  
 Bank loans

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"Medium-term Liabilities" here mean

(a) Short . . . . . Liabilities which must be met within a year or eighteen months after the conclusion of the current year

(b) Long . . . . . Liabilities which must be met between eighteen months and five years after the conclusion of the current year

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"Long-term Liabilities" here mean . Liabilities which have not to be met until five years have elapsed from the date of the balance sheet  
 \*Debenture stock (if not a medium-term liability)  
 Mortgage (if not a medium-term liability)  
 Central obsolescence fund

---

"Net Worth" here means . . . . . The surplus of total assets over total liabilities. It is made up of—  
 Issued Capital  
 General Reserves  
 Profit and Loss Account balance  
 Less : Fictitious Assets

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It will be realized that from the management point of view a study of the balance sheet as an isolated entity will hardly give that effective control which can only be attained when the results of the company's working are considered as one complete whole. The question therefore arises as to what financial items should be taken, with this object in view, and how they should be combined with

\* Irredeemable Debenture Stock should be classed as Capital.

items which properly belong to the trading position, in order to give a clear picture to the manager.

The three vital items relating to the trading are clearly—

1. Sales turnover.
2. Stocks and work-in-progress.
3. Divisible profits.

The sales turnover, though a fluctuating figure, is the ultimate measure of the activity of the business, and as such is bound to be used to a great extent as a basis for determining the working efficiency.

The rise and fall in stocks and work-in-progress must obviously have a very considerable influence on the financial position of the company, especially from the point of view of liquidity. Undue lock-up of capital in stocks and work-in-progress may be a grave danger.

Divisible profits are taken in preference to factory surplus or net profits because they represent the ultimate earnings of the company on the capital employed, whether these earnings are obtained through trading or through investments. As the dividends will be taken from this figure of divisible profits, this is clearly the figure over which control should be kept.

The financial items used for control purposes will be the main categories of assets and liabilities, i.e.—

- Liquid assets.
- Current assets.
- Fixed assets.
- Current liabilities.
- Total liabilities.
- Net worth.

In addition, a control should be kept on undue delay in customers' payments, and for this purpose the figure of accounts outstanding is used, which properly forms part of the liquid assets category.

The combination of these items for control purposes can be made in a number of ways, but such ratios are apt to be a little bewildering, and it is perhaps wisest to differentiate between what may be called "ratios of control" and "ratios of information."

Certain financial items fluctuate—or are liable to fluctuate—rapidly as the months pass; others change very slowly, if at all. For instance, sundry debtors may rise and fall fairly sharply in accordance with the delivery of goods and the terms of payment. The issued capital, on the other hand, is quite likely to remain unchanged for many years.

The ratios of control, therefore, should be those which state the position of the items liable to fluctuate sharply, and the ratios of information will then be the remaining series of figures. This does not mean that the ratios of information are not of value; on the contrary, under certain circumstances they may prove of much greater value than the ratios of control. For instance, a managing director desiring to negotiate for an overdraft or to set out his past financial history in connection with a merger would obtain much more evidence of stability from his ratios of information than from the fluctuations which can be observed in the ratios of control.

It is suggested that the following should be taken as ratios of control—

- (a) The ratio of liquid assets to current liabilities.
- (b) The ratio of sales turnover M.A.T. to accounts outstanding.
- (c) The ratio of current assets to current liabilities.
- (d) The ratio of sales turnover M.A.T. to stocks and work-in-progress.

The following five ratios, which are all of great value, can be taken as ratios of information—

- (e) The ratio of net worth to fixed assets.

- (f) The ratio of sales turnover M.A.T. to fixed assets.
- (g) The ratio of net worth to total liabilities.
- (h) The ratio of sales turnover M.A.T. to net worth.
- (i) The ratio of divisible profits to net worth.

The conditions indicated by these ratios may be briefly set out as follows—

#### (a) LIQUID ASSETS TO CURRENT LIABILITIES

As pointed out earlier in this chapter, the first question to arise in the study of a balance sheet is whether the liquid resources of the company are sufficient to meet the current liabilities. A firm might be in the position of having so much of its capital locked up in assets which cannot readily be realized that it might be forced into liquidation when with a little more time at its disposal it would undeniably prove solvent.

The obvious gauge to be used to test this is the ratio of liquid assets to current liabilities. Liquid assets are taken as being cash in hand and at bank, marketable securities, sundry debtors, and bills receivable; current liabilities are trade creditors and any other payments that must be made in the immediate future. If the liquid assets represent 100 per cent of the current liabilities, under normal conditions all is well, and anything over 100 per cent in this ratio may be looked upon with satisfaction.

#### (b) SALES TO ACCOUNTS OUTSTANDING

Where, however, this ratio falls short of being an absolute test is that it is not possible from the ratio itself to judge how much of the liquid assets are represented by cash and how much by sundry debtors.

If a firm is to keep any check on the amount of money due some definite credit terms must be laid down, otherwise it will become impossible to form even an approximate estimate of the cash position or resources that will

become available at a given date. Whether the terms be thirty days or sixty days or longer, every effort should be made to enforce them and to prevent the sales department from extending longer credit as an inducement to prospective customers.

The ratio of sales to accounts outstanding serves as an indication of whether credit terms are being adhered to or allowed to expand to an undue degree. In the example shown this ratio ranges from 250 per cent to 200 per cent—an abnormally low figure, as it implies that nearly half a year's turnover is unpaid for at any given date. The policy of the firm in this connection was obviously faulty, and had it not been for the issue of new debentures in February, 1937, it would have been hardly possible for the concern to carry on. In the later months of 1937 the ratio of liquid assets to current liabilities is falling steadily, and although it is still over the 200 per cent mark, the fact that the ratio of sales to accounts outstanding is also falling shows that the firm will be forced into liquidation at an early date unless drastic measures are taken to lessen the credit terms.

Moreover, it should be borne in mind that apart from the risk of failure due to locking up assets thus in accounts outstanding, there is an actual loss to the firm in interest on the money outstanding, and that on occasions it may prove more satisfactory to reduce the price of the goods slightly if this will ensure quicker payments.

From a practical standpoint it may be as well for the accountant to take some responsibility for certifying that the sundry debtors are genuinely liquid assets. In times of bad trade it may be extremely difficult to collect debts. This does not mean that the debts in question are in any way liable to become bad debts; many reputable firms have been in a perfectly sound position on paper and yet unable to meet their payments promptly as they would



like to do. This again has been caused by their own debtors being temporarily unable to meet their obligations, and a vicious circle of this nature is very quickly formed when trade is bad.

The accountant-cashier will certainly prepare each month a cash forecast, and as it is his business to have an intimate knowledge of the amount of money that he is likely to receive—and it is the writer's experience that the cashier's forecast is usually the most accurate item in the whole of the statistical framework of the average industrial undertaking—he should be able to say without much difficulty the extent to which the figure for sundry debtors can be considered to be a truly liquid asset.

There is no reason why this should disturb the balance sheet in any way. It is quite possible to provide two figures for sundry debtors, as under—

CURRENT ASSETS						£
Cash in hand and at Bank	.	.	.	.	.	11,338
Sundry Debtors—						£
(a) Blocked	.	.	.	.	.	71,357
(b) Free	.	.	.	.	.	118,631
Total	.	.	.	.	.	189,988
Stocks	.	.	.	.	.	30,372
				etc.		

The usual reserves for bad debts would be made, so that this side of the problem would not be in question.

The managing director can then watch his liquid position very much more carefully, and avoid the danger of finding that his paper position is sound but his actual cash position a difficult one.

#### (c) CURRENT ASSETS TO CURRENT LIABILITIES

Next in importance, and closely linked with the ratio of liquid assets to current liabilities, is that of current assets to current liabilities. Current assets are liquid assets plus stocks and work-in-progress and non-marketable securities, excluding shares in associated companies, and

assuming that these two items do not fluctuate widely the two ratios will, when charted, follow approximately the same course.

Any divergence, therefore, in these two chart lines implies a considerable fluctuation in either stocks or securities—generally in the former.

*Working Capital.* Apart from its value as a danger signal with regard to the stock position, this ratio of current assets to current liabilities has a deeper significance. Sometimes it is known as the working capital ratio, since the difference between current assets and current liabilities represents the working capital of the company, or, in other words, the money which can be readily realized for the immediate financing of the company's operations.

A fall in this ratio may be the first indication of straitened circumstances ahead, and should call for an immediate investigation of the actual figure of working capital available. This figure is shown on the new balance sheet form, and may be charted with advantage against a "normal." There is no rule-of-thumb method of ascertaining the normal for any particular concern, but the following factors require consideration—

(i) The amount of money likely to accrue from sales over, say, the next three to six months; here the question of credit allowed to the customer must be taken into account.

(ii) The amount of money necessary to manufacture or purchase the goods to be sold and to keep the stocks at a normal figure.

(iii) All expenditure on company overheads, fixed charges, etc.

The cash forecast which is included in the board returns would be of assistance in the compilation of this figure, and it would be as well to calculate it on a sliding scale for

varying sales turnovers, and to chart the actual results for the month against the estimated figure for the appropriate turnover.

As a secondary control figure here the ratio of sales to working capital may be taken, though if the method of charting suggested in the last paragraph be followed, this additional ratio becomes superfluous.

(d) SALES TURNOVER M.A.T. TO STOCKS AND  
WORK-IN-PROGRESS

The whole question of stock control is a difficult one, calling for the closest co-operation between the sales department and the production side, whether the latter be a works or a buying department. An additional check on the stock position is the ratio of the moving annual total of sales to stocks and work-in-progress. It may be claimed that this is more in the nature of a works efficiency ratio than a financial ratio, but whether it be included in the financial position chart or elsewhere, it should be closely considered where any appreciable discrepancy arises between the ratio of current assets to current liabilities and the ratio of liquid assets to current liabilities.

With regard to the ratios of information, we have—

(e) NET WORTH TO FIXED ASSETS

One of the most common faults disclosed by balance sheet analysis is that of over-investment of capital in fixed assets. This is generally caused by undue optimism on the part of the proprietors or managers of the business, either when the firm first comes into being or when trade expands and leads to the purchase of additional buildings and plant to accommodate the increased production. Naturally the first indication of over-investment in

fixed assets shows in the ratio of net worth to fixed assets, and a fall in this ratio implies a falling off in the earning power of the money invested in the fixed assets. It is possible, of course, for this fall to continue for some time before leading to financial difficulties, but as the natural corollary to such a fall is a fall in the ratio of current assets and liquid assets to current liabilities, it should be looked upon as a danger signal, and every effort should be made to remedy matters. In extreme cases it may prove desirable to sell some of the fixed assets or to issue a debenture to ensure an adequate amount of working capital; otherwise a strong sales drive is called for to enable the plant to work at its full capacity and so earn a reasonable return on the investment in fixed assets.

#### (f) SALES TURNOVER M.A.T. TO FIXED ASSETS

As a secondary control the ratio of sales to fixed assets should be considered, as if this latter ratio is remaining steady while the ratio of net worth to fixed assets is falling, it is an indication that the fault lies in insufficient profit being made on the sales and an investigation into this problem becomes imperative.

#### (g) NET WORTH TO TOTAL LIABILITIES

An important point in balance sheet analysis is the question of whether the concern is under- or over-capitalized. The consequences of over-capitalization are hardly so serious as those of under-capitalization, as it merely implies that the capital employed is not earning sufficient profit to justify itself. On the other hand, under-capitalization, except under extremely favourable circumstances, leads to financial failure and the subsequent closing down of the business.

The net worth, or effective capital, of the business is rarely stationary. Where a profit has been made over a

period of years the net worth of the company, which at the start represented only the issued capital, increases, and any estimate of the earning power of the money invested in the company should, therefore, be based on the net worth rather than on the issued capital.

If the liability side of a balance sheet be looked upon as a statement of the source of all the money employed in the business, whether that money be represented by fixed assets, stocks, cash, or outstanding accounts, it will be obvious that for the successful running of the firm the greater part of the source of the assets must be of a permanent nature, if there is to be any stability in the finances of the company. It is, therefore, important that the ratio of permanent capital, i.e. net worth, to temporary capital, i.e. liabilities, should be maintained, and a fall in this ratio should be regarded with suspicion.

#### (h) SALES TURNOVER M.A.T. TO NET WORTH

A further indication as to whether a firm is under- or over-capitalized may be obtained from the ratio of sales to net worth. Under normal circumstances a rise in this ratio may be regarded as satisfactory, as the more business that can be safely undertaken on a given capital, the larger will be the return on that capital. But should a large increase appear in the ratio of sales to net worth, it may be a warning that care must be taken to avoid trying to expand too far without an increase in the permanent capital employed, and if such a rise be coupled with a considerable fall in the ratio of net worth to total liabilities, it becomes an almost certain indication that difficulties will arise at no very distant date.

#### (i) DIVISIBLE PROFITS TO NET WORTH

The next ratio to be considered, that of divisible profits to net worth, is the ratio that links up the trading position

of the company with the financial position. Divisible profits are the final net profits after all expenses and income of every kind have been accounted for, but before the deduction of dividend payments, allocations to reserves, etc. This ratio represents, therefore, the earning power of the capital invested in the concern, and it was explained earlier why it is preferable to take net worth as its base rather than issued capital.

This is naturally an important ratio in estimating whether too much or too little capital is being employed in working an undertaking. A firm may be making what appears to be an adequate profit if that profit is considered only in relation to the sales, but the return on the total sum of money invested in the business may prove to be totally inadequate; the two ratios should, therefore, be considered as complementary to one another, and both should be examined before any conclusion is reached regarding the earning capacity of the firm in question.

In this connection it should be noticed that the moving annual total of the divisible profits at a given date is divided by the net worth figure shown twelve months previous to that date, as the profit has been earned over a period of twelve months, and the net worth at the beginning of the period represents the initial capital employed to earn the profits shown.

The ratios quoted in the course of this chapter are such as will expose the main flaws likely to be found in any balance sheet structure—over-investment in fixed assets, too lengthy credit terms, over-investment in stocks, and under- or over-capitalization. Once the manager has satisfied himself on these main points, he will find an almost endless number of checks can be obtained by the combination of other items that may prove of interest in a particular firm.

It should by no means be supposed that these are the only ratios that can be employed in balance sheet analysis to produce the same or similar results. For instance, the ratio of fixed assets to total assets will show as it rises an over-investment in fixed assets; cost of goods sold to stocks may be preferred as an indication of stock turnover on the grounds that the figure for stocks only includes factory cost and not a proportion of general expenses and profits, and so on. The choice, however, of the ratios to be used should be a matter for discussion between the managing director, the accountant, and the control assistant, and the ratios employed should always be strictly limited to those which are likely to form a definite aid in the control of the firm in question.

The table given on p. 195 summarizes the foregoing, and may be found useful for quick reference.

The fluctuations of these ratios can be watched by means of simple line charts, and wherever possible a "normal" line should always be included with every ratio in order that the managing director can see clearly whether he is above or below the sound position. For a full analysis two sheets of ratio curves and one sheet showing the working capital position should be sufficient, and if this be thought too much, only the curves showing the ratios of control can be included in the monthly report, thus reducing the financial charts to two instead of three.

The value of these charts may be seen if the charts of the financial position (Figs. 34, 35, and 36) included here be studied in connection with the business and trading position previously outlined.

It will be remembered that the imaginary firm taken as an example was supposed to manufacture agricultural machinery, internal combustion engines, and miscellaneous articles of a smaller nature. During the first year

Ratio	Improvement Shown by	Notes
(a) $\frac{\text{Liquid Assets}}{\text{Current Liabilities}}$	Rise	100% usually considered satisfactory. Depends on type of business. Should be considered in connection with ratio of sales to accounts outstanding
(b) $\frac{\text{Sales T/o M.A.T.}}{\text{Accounts Outstanding}}$	Rise	Normal depends on credit terms allowed. This ratio and the preceding one reflect on the position of the firm to meet its immediate debts
(c) $\frac{\text{Current Assets}}{\text{Current Liabilities}}$	Rise	200% is satisfactory, but varies for each particular firm. Should follow roughly the same outline as ratio of liquid assets to current liabilities. Discrepancy usually due to stock fluctuations, and for this reason it should be considered alongside ratio of sales turnover M.A.T. to stocks and work-in-progress
(d) $\frac{\text{Sales T/o M.A.T.}}{\text{Stocks and W.i.p.}}$	Rise	No general "normal" can be quoted here. The ratio indicates the number of times the money invested in stocks and work-in-progress is being turned over in the course of a year
(e) $\frac{\text{Net Worth}}{\text{Fixed Assets}}$	Rise	Again no "normal" can be cited. As net worth is the difference between total assets and total liabilities, an improvement in the ratio shows that the surplus assets are becoming of a more realizable nature
(f) $\frac{\text{Sales T/o M.A.T.}}{\text{Fixed Assets}}$	Rise	This ratio acts as an additional check on the previous one, and shows by an improvement that the money invested in fixed assets is leading to a larger sales turnover
(g) $\frac{\text{Net Worth}}{\text{Total Liabilities}}$	Rise	A fall in this ratio may be serious as indicating that too much of the capital employed is of a temporary nature
(h) $\frac{\text{Sales T/o M.A.T.}}{\text{Net Worth}}$	Rise	A rise in this ratio indicates an improved position, as it means that a larger turnover is being done on the money invested in the business. Where the rise, however, is very rapid, the ratio should be looked upon as a danger signal, as it may mean that the firm is under-capitalized for the amount of work it is undertaking. On the other hand, the rise may be due to a falling off in profits, and this can be checked by a consideration of the ratio of divisible profits to net worth
(i) $\frac{\text{Divisible Profits}}{\text{Net Worth}}$	Rise	A fall below the normal shows that an adequate profit is not being made on the capital invested in the business

the orders received for agricultural machinery and internal combustion engines were steadily rising, as was the trend of divisible profits. The management looked upon this as a permanent improvement, and decided to enlarge their factory to meet an even greater output. This they did



## FINANCIAL POSITION — RATIOS OF CONTROL

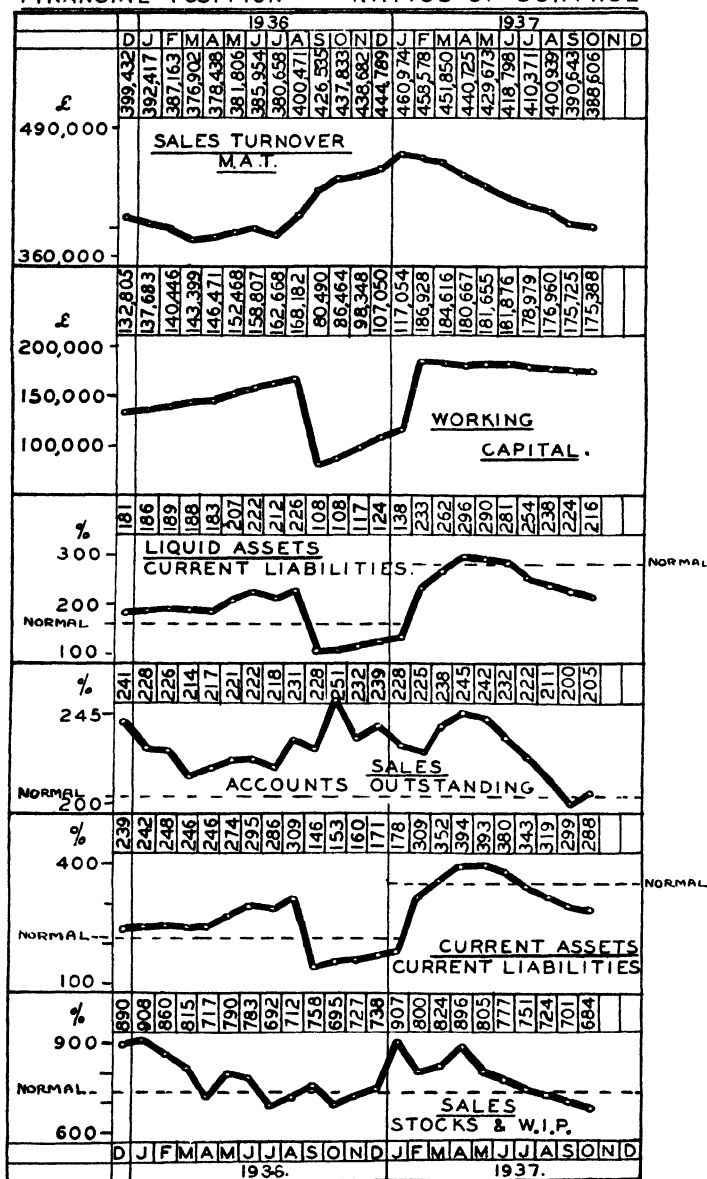


FIG. 34

# THE FINANCIAL POSITION

197

## FINANCIAL POSITION — RATIOS OF INFORMATION

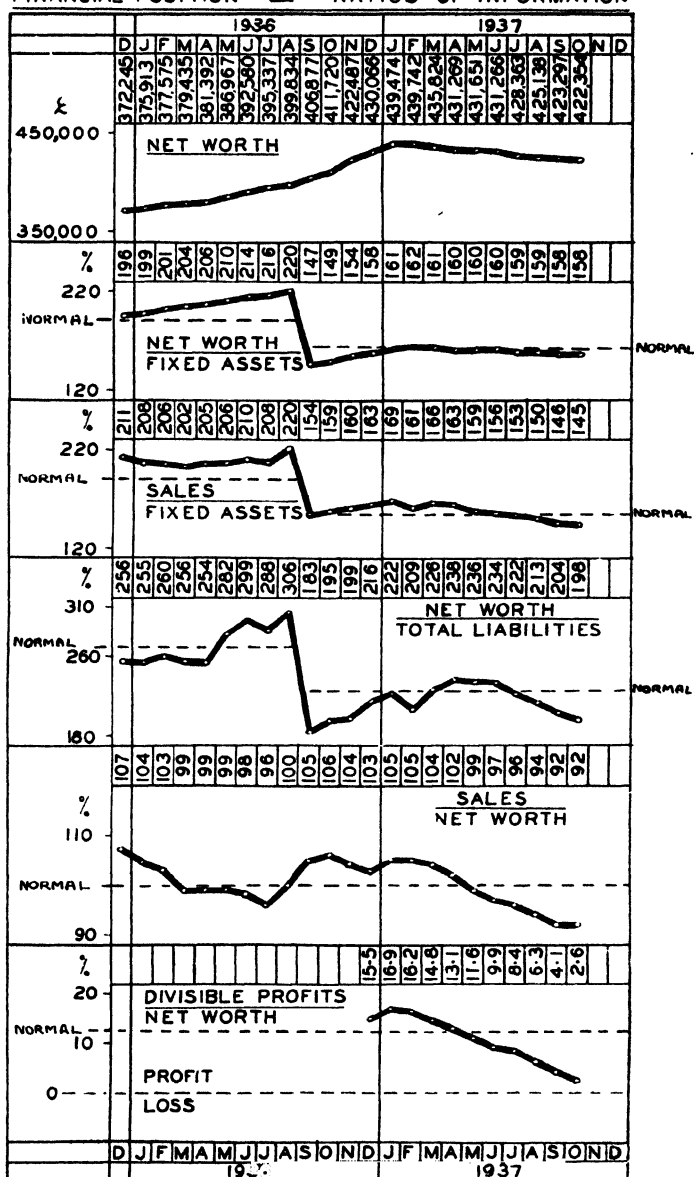


FIG. 35

in September, 1936, obtaining a small overdraft from the bank to assist in financing the scheme.

The immediate effect of this, as shown in the balance sheet, was a sudden rise in the current liabilities and a corresponding fall in the ratio of liquid assets to current liabilities and in the ratios of net worth to fixed assets and net worth to total liabilities. The ratio of sales to fixed assets naturally fell sharply, but this improved slightly in subsequent months as the sales continued to rise.

As mentioned in discussing the ratio of sales to accounts outstanding, the credit policy of the firm had throughout the years illustrated been at fault, as almost half a year's turnover value was outstanding at any time. This led to a shortage of ready money, and as the bank began to press for a reduction of the overdraft which had been rising from September, 1936, to January, 1937, the firm issued a further £70,000 of debenture stock, paid off their overdraft and satisfied the more pressing of their creditors.

The result of this move was an improvement in the ratios of liquid assets to current liabilities, and current assets to current liabilities, and had the sales been maintained, the following months might have led to a generally stronger position to justify the expenditure on fixed assets.

Sales, however, began to fall off, and from making a profit the firm began to record a loss. This was aggravated by the expenditure of a considerable sum of money on sales staff in an effort to maintain sales at their previous high level, and by October, 1937, the decreased profit, coupled with the extremely slow collection of cash, had led to a general worsening of the financial position of the company.

The working capital chart for this company is shown in Fig. 36, and it will be seen that it is divided into two

## FINANCIAL POSITION — WORKING CAPITAL

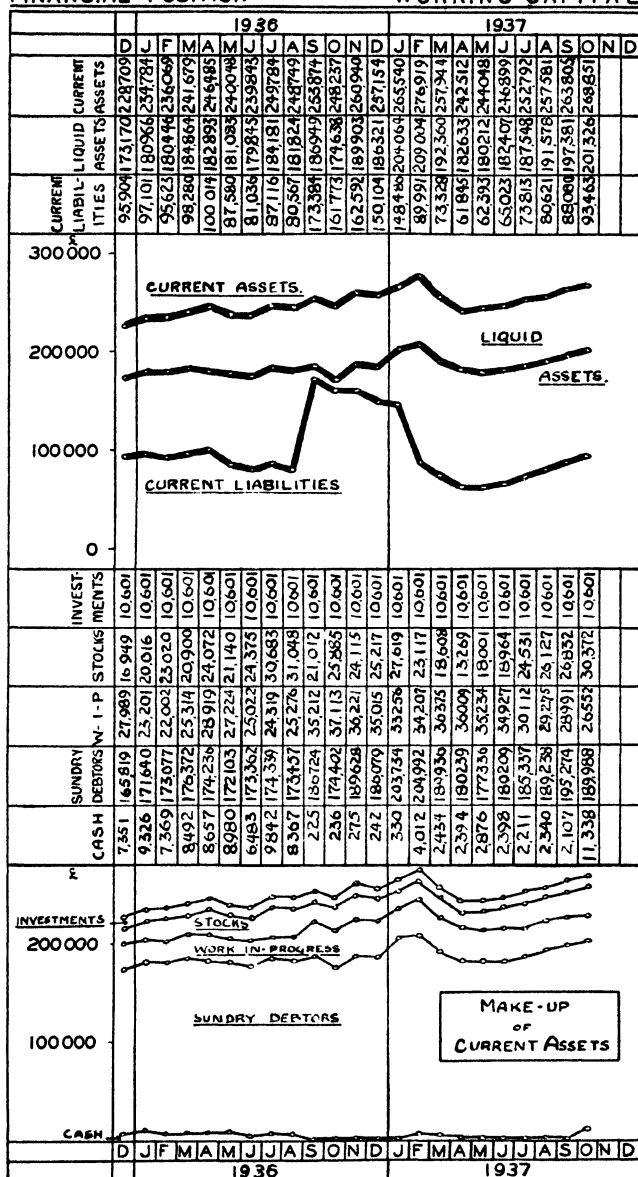


FIG. 36

portions. The upper portion sets out the figures of current assets, liquid assets, and current liabilities as they fluctuate month by month; the lower portion shows the make-up of the current assets.

It will be seen from the upper portion of the chart that the current assets and liquid assets have fluctuated comparatively little during the period, but that there have been wide fluctuations in the curve of current liabilities.

In September, 1936, there is a sudden rise in the curve of current liabilities. This was the month in which the firm decided to enlarge their premises and made use of their accrued profits for this purpose; the natural result of this was to reduce the cash held—which had always been at a remarkably low level—to £225, and the current liabilities were further increased by a bank overdraft of £8,016.

Although the sales turnover was actually increasing steadily until January, 1937, the stock position remains steady, a fact which rather indicates that there was in reality little justification for the expansion of the premises, as the increased turnover was being met and the stock position maintained even before the extra accommodation was provided. Work-in-progress naturally increased slightly with the additional output demanded, but when the sales began to fall off after the first quarter of 1937, the work-in-progress also decreased.

The outstanding feature of the make-up of the current assets is, however, the position with regard to sundry debtors. In February, 1937, the company issued further debentures to pay off their bank overdraft and meet the more pressing of their creditors. This shows as a reduction in the curve of current liabilities, and a slight fall in the curve of sundry debtors looks as if they made some effort to collect their debts more quickly to assist in meeting

their immediate liabilities. This policy was apparently pursued throughout March and April, but as the sales began to fall off they reverted to the old policy of trying to get orders by offering longer credit terms.

The value of this chart showing the make-up of the assets becomes apparent immediately in this connection. It was pointed out previously that the ratio of liquid assets to current liabilities was not an infallible test of the ability of the company to pay its way, and the chart now under review serves to emphasize the significance of the further ratio suggested to act as a check on the ratio of liquid assets to current liabilities, i.e. the ratio of sales to accounts outstanding.

As it will be obvious that this chart is likely to prove of great assistance to the managing director, an additional example has been included (Fig. 37) illustrating a totally different set of conditions.

In this latter example it will be seen from the upper portion of the chart that the current assets have been steadily decreasing throughout the period. The liquid assets, on the other hand, run fairly steadily until February, 1937, at which point they begin to fall away sharply.

The current liabilities, after decreasing from the middle of 1936 until January, 1937, have risen until in August, 1937, they exceed the liquid assets, thereby introducing a situation that may later prove dangerous.

The study of the lower half of the chart provides some interesting facts. All through 1936 work-in-progress was steadily decreasing, without much change in the stocks held. The cash was increasing and the sundry debtors decreasing, thereby showing that the working capital was going out of the business owing to a fall in turnover. Presumably there were not sufficient orders on the books



to enable the money accumulating in the cash section to be spent on material to keep the work-in-progress steady, and, consequently, as the turnover fell off, the whole business began to shrink.

In the early part of 1937 there was a sharp decrease in work-in-progress, followed by a rise in the sundry debtors—the natural state of affairs where some large orders were completed and there was nothing on the order book to take their place. The cash by now is falling, indicating that resources that should be used for investing in work-in-progress are being spent on overheads to keep the business going.

In the summer of 1937 there is a slight increase of work-in-progress, and the stocks begin to rise as well, and in October, when the record ends, the cash and sundry debtors have reached their lowest point and the stock is higher than in any other month recorded.

No doubt the novelty of charting balance sheet results and combining them with a certain number of simple ratios may here and there cause a certain amount of uneasiness in the minds of those who have not previously endeavoured to keep a watch on such matters by graphical means. But if in the effort to obtain a true statistical control over an industrial undertaking we are to hold to the ideal set out in Chapter II, we are bound to investigate and analyse the control of the financial side, in precisely the same manner as we have already dealt with the business and trading sides, until we can present to the managing director a clear picture of the position. This can only be done by graphical methods, and whilst the writer does not attempt to claim for the system now put forward that it presents more than a tentative contribution towards that science of higher control which must inevitably come, he is at any rate confident that this



## STATEMENT OF ASSETS AND LIABILITIES, OCTOBER, 1937

B R. 8

Item		At October		At 31st Dec , 1936		Increase	Decrease
		Amount	Per-centage	Amount	Per-centage		
ASSETS							
1	Cash in Hand and at Bank	£ 11,338	18	£ 242	—	£ 11,096	£
2	Sundry Debtors	189,988	29.9	186,079	29.5	3,909	—
3							
4	Total LIQUID ASSETS	201,326	31.7	186,321	29.5	15,005	—
5	Process Stocks	30,372	4.8	25,217	4.0	5,155	—
6	Work in Progress	26,552	4.2	35,015	5.6	—	8,463
7	Investment	10,601	1.7	10,601	1.7	—	—
8							
9							
10	Total CURRENT ASSETS	268,851	42.4	257,154	40.8	11,697	—
11	Land and Buildings	122,077	19.2	124,667	19.8	—	2,590
12	Plant and Machinery	144,889	22.7	148,349	23.5	—	3,460
13							
14							
15	Total FIXED ASSETS	266,966	41.9	273,016	43.3	—	6,050
16	Total ALL REAL ASSETS	535,817	84.3	530,170	84.1	5,647	—
17							
18							
19							
20							
LIABILITIES							
21	Sundry Creditors	93,463	14.8	131,536	20.9	—	38,173
22	Bank Overdraft	—	—	18,468	2.9	—	18,468
23							
24	Total CURRENT LIABILITIES	93,463	14.8	150,004	23.8	—	56,541
25	5% Debenture Stock	120,000	18.9	50,000	7.9	70,000	—
26							
27	Total ALL LIABILITIES	213,463	33.7	200,104	31.7	13,359	—
28	SURPLUS, Real Assets over Total Liabilities						
29	Goodwill	322,354	50.6	330,066	52.4	—	7,712
30	NET WORTH	100,000	15.7	100,000	15.9	—	—
31	Represented by—	422,354	66.3	430,066	68.3	—	7,712
32	Ordinary Share Capital	290,000	45.7	290,000	46.0	—	—
33	Preference Share Capital	50,000	7.8	50,000	7.9	—	—
34	Reserve Account	10,000	1.6	10,000	1.6	—	—
	Profit and Loss Balance	72,354	11.2	80,066	12.8	—	7,712

ASSETS = LIABILITIES + NET WORTH

Items 16 + 29 = 27 + 30

Fig. 38



# FINANCIAL FORECAST FOR THREE MONTHS ENDING JANUARY, 1938

B R 9

ITEM	LAST MONTH—OCTOBER				November	December	January
	Estimated	Actual	Up	Down			
RECEIPTS							
(a) Outstanding	£ 43,755	£ 42,219	£	£ 1,536	£ 42,576	£ 47,000	£ 44,175
(b) Cash Sales	—	—	—	—	—	—	—
(c) Interest ex Bank	—	—	—	—	—	—	—
(d) Interest ex Investments	—	—	—	—	—	—	—
(e) Interest ex Special Charges	—	—	—	—	—	—	—
(f) Special Charges	—	—	—	—	—	—	—
TOTAL							
	43,755	42,219	—	1 536	42,576	47,000	44,175
PAYMENTS							
(a) Purchases	12,212	12,099	787	—	12,335	17,958	16,377
(b) Direct Labour	5,500	5,426	—	74	5,600	5,500	5,500
(c) Factory Overheads	9,127	9,013	—	114	9,000	9,500	8,900
(d) Company Overheads	300	300	106	—	300	350	275
(e) Exceptional Trading Expenses	417	417	—	—	500	500	500
(f) Fixed Charges	—	—	—	—	—	—	—
(g) Special Charges	—	—	—	—	—	417	417
TOTAL							
	34 404	35,095	893	202	35,651	40,375	37,169
	9 351	7,124	—	2 227	7,225	6 655	6 006
ESTIMATED SURPLUS							

## CASH POSITION AS AT 31ST OCTOBER 1937

To Balance at 30th September, 1937—	£ 1,908
On Deposit	—
On Current Account	—
Cash in Hand	—
To Factory Receipts during Month	42,219
Sundry Receipts during Month	—
<b>Less</b>	
Total Purchases during Month	12,099
Total Direct Labour during Month	5,426
Total Factory Overheads during Month	6,324
Total Company Overheads during Month	9,013
Total Exceptional Trading Expenses during Month	416
Total Fixed Charges during Month	500
Total Special Charges during Month	417
<b>SURPLUS</b>	35,095
Represented by—	9 231
(a) An increase in Overdraft from	£ — to £ —
(b) An increase in Balance from	£ 1,908 to £ 11,111
(c) An increase in Cash in hand from	£ 199 to £ 227

FIG 39



arrangement is practical, workable, and as simple a statement of the financial position as can be obtained.

The financial statements to be included in the board returns would ordinarily be—

B.R. 8. *Statement of Assets and Liabilities*. This is, as previously explained, a vertical balance sheet, arranged in that manner to facilitate typing. (See Fig. 38.)

B.R. 9. *Financial Forecast*. The usual forecast of income and expenditure, but with the latter arranged under the standardized headings for expenditure. (See Fig. 39.)

It may perhaps be pointed out that the figures in this forecast refer only to actual receipts or payments occurring during the month irrespective of whether they were incurred during that period or not.

Such statements are usual in all businesses in order that the individual responsible for the handling of the financial side of the business can foresee the amount of cash that will be available against expected expenditure. Matters of this kind are often handled by a Finance Committee of the board, but the summary of the position at the beginning of the month should be included in the returns submitted to the whole of the board.

It is quite likely that the managing director may desire to add additional sheets connected with the financial position to the standard control board returns. The financial information arising from the activities of an industrial undertaking can be extensive, and what is needed by the managing director and the board so that they can see clearly the position at the moment is bound to depend upon the individual circumstances of the case.

One such additional sheet might perhaps be mentioned here, as it has been found of practical value by managing directors who are not widely experienced in balance-sheet analysis. It is known as the Asset Variation Statement, and is actually a vertical balance-sheet arranged in a

special manner, so as to show the items have altered in the period under review.

It is based upon the fact that an industrial undertaking cannot create money. It starts operations with a certain sum which it has obtained in exchange for its shares of some denomination, and any increase in that sum primarily comes from trading profits "ploughed back" into the business. Apart from this, the normal methods by which additional money can be brought in are (a) by a temporary advance from a bank or loan from a private individual; (b) by the issue of further share-capital; and (c) by the issue of a debenture as a long-term loan for which the assets of the business are pledged as security.

The managing director, therefore, wishes to watch how the money with which he is doing business is moving—whether during the month money has come into or gone out of the business. Normally this means that he wishes to watch the fluctuation of the overdraft; if it has increased, what has that money gone into; and if it has decreased, what has that money come out of. It must have gone into, or come out of, assets of some kind.

The Asset Variation Statement is designed to answer his question. In it the assets are first set out as in the balance sheet, showing the decrease or increase when compared with either the previous month or the end of the last financial year. The liabilities are set out below, and in order to make the position clearer, an increase in liabilities is treated as a decrease in assets, and vice versa—which permits addition of the columns without reversal.

Fig. 40 shows an Asset Variation Statement of this type based upon the figures recorded in Fig. 38.

From the above it will be readily seen that the money obtained from a further issue of £70,000 of 5 per cent Debenture Stock, plus £14,513 from other sources, was principally expended in paying off sundry creditors and

# ASSET VARIATION STATEMENT

	This Month	@ 31/12/42	ASSET	
			Increase	Decrease
<b>ASSETS</b>	£	£	£	£
Cash in hand and at Bank . . . . .	11,338	242	11,096	—
Sundry Debtors . . . . .	189,688	186,079	3,909	—
Process Stocks . . . . .	30,372	25,217	5,155	—
Work-in-progress . . . . .	26,552	35,015	—	8,463
Investments . . . . .	10,601	10,601	—	—
Goodwill . . . . .	100,000	100,000	—	—
Land and Buildings . . . . .	122,077	124,667	—	2,590
Plant and Machinery . . . . .	144,889	148,349	—	3,460
<b>TOTAL ASSETS</b> . . . . .	<b>635,817</b>	<b>630,170</b>	<b>20,160</b> <b>14,513</b>	<b>14,513</b>
Increase of—			5,647	
<b>LIABILITIES and NET WORTH—</b> (Increase in liabilities treated as decrease in assets, and vice versa).				
Sundry Creditors . . . . .	93,463	131,636	38,173	—
Bank Overdraft . . . . .	—	18,468	18,468	—
5% Debenture Stock . . . . .	120,000	50,000	—	70,000
<b>NET WORTH—</b>				
Ordinary Share Capital . . . . .	290,000	290,000	—	—
Preference Share Capital . . . . .	50,000	50,000	—	—
Reserve . . . . .	10,000	10,000	—	—
P. & L. Balance . . . . .	72,354	80,066	7,712	—
	<b>635,817</b>	<b>630,170</b>	<b>64,353</b>	<b>70,000</b> <b>64,353</b>
Decrease of—				5,647

## MOVEMENT OF FUNDS DURING THE PERIOD

<i>Funds received from—</i>	£	£
Issue of 5% Debenture Stock . . . . .	70,000	
Liquidation of Work-in-progress . . . . .	8,463	
Depreciation Book-entries— (appropriation of surplus)		
Land and Buildings . . . . .	2,590	
Plant and Machinery . . . . .	3,460	
Total . . . . .	— — —	84,513
<i>Funds expended on—</i>		
Creation of Cash Fund . . . . .	11,096	
Extension of Debtor credit . . . . .	3,909	
Increase of Process Stocks . . . . .	5,155	
Repayment of Creditors . . . . .	38,173	
Repayment of Bank Overdraft . . . . .	18,468	
Meeting deficit on working . . . . .	7,712	
Total . . . . .	— — —	<u>84,513</u>

FIG. 40

the bank. A loss of £7,712 on the working during the period had to be met, stocks were slightly increased and a small increase of the sundry debtors was permitted—and the company was then left with £11,096 of cash in the bank, instead of an overdraft of £18,468 as previously.

A statement of this kind is often very helpful to enable the managing director to see more clearly what is happening on the financial side of his business.



## CHAPTER X

### CHECKS AND COMPARISONS

If management is based upon comparison, and the managing director is to guide the undertaking of which he is in charge towards safety and success, he must be able to compare the working results month by month, individually with each other, as well as with the final result at the conclusion of the last financial year. This latter end he achieves through using his moving annual total figures, but since the essence of higher control is to provide a working method by which the managing director can plan his course towards the predetermined goal, it is obviously necessary for him to watch and compare his monthly returns in order to see whether any steps that he may have taken in connection with reduction of expenditure or increase of turnover in any particular section, are being put into effect.

The Board Returns and the Works Statistics should provide all the necessary data, but the main trend curves relating to sales turnover, profit or loss, or other major items, whilst they show clearly the way the business as a whole is going, do not indicate whether a rise in the total turnover is due to a major rise in one section covering a continued fall in another section, or, in the case of the profit, whether a drastic reduction in one category of expense has been largely minimized by increases in other directions.

All these matters need careful analysis whilst the Board Reports are being made up. The Board Returns in themselves provide the final figures for the month, as submitted by the chief accountant of the company. It is,

of course, possible for the managing director, having, let us say, instituted a campaign for a reduction of consumable stores expense, to refer back in his files to several previous months, and make a note of whether the recorded figure is being reduced. This is not a very satisfactory method of handling the matter, since it is more likely that he may be considering how his indirect material expense section as a whole can be reduced, and he may therefore wish to survey the monthly figures for the past months of the year under review for a dozen or more items. To do this by turning up back pages becomes a clumsy and ineffective affair.

Increasing experience with this control method has shown that the regular comparison of the recorded monthly results is a very important factor. In any industrial undertaking, when so short a period as a month is taken, the expenses recorded in the different categories are bound to fluctuate to some extent. The same may be said of the sales turnover categories in a good many classes of business. In those where the product is sold in small units or is of standardized type the monthly sales turnover figures may be fairly regular, and their rise and fall each month may give a good indication of the sales effort expended. In a great many types of business, however, where large items of irregular price are sold after sometimes lengthy negotiations, the orders received and sales turnover figures may vary widely month by month without any blame to the sales effort. Irregularity, therefore, on the selling side may be unavoidable; but irregularity on the manufacturing side is another matter altogether.

All production arises from the efforts of the direct producers in the concern, assisted by the services provided by the various indirect departments. The amount of direct labour expended each month should normally be a regular figure, rising and falling between narrow limits.

The same can be said of the direct material *used*, since the direct producers use the direct material for the goods they make, and if the direct producers do not vary, the amount of direct material used should not vary very much either. The direct material *purchased* may, it is true, vary considerably month by month, since the management may consider it wise to buy stocks of this or that in view of a probable rise in prices. But since in all comparative calculations it is the direct material *used* which is considered, any surplus purchased and not used will remain in the closing stock figure, and not upset the percentage make-up of the production for the month.

The same may be said of most of the factory oncosts and the company overheads. Month by month, as the company functions, the totals of the categories of expense should not diverge widely from each other, and any unusual increase or decrease usually implies some unusual factor which needs investigation or a mistake in the records. Reference has already been made to the importance of reserving month by month against any known expense which is proceeding, but for which an invoice cannot be obtained monthly. Reserves of this kind should never be made for internal expense on the excuse that the actual figure is difficult to obtain. All internal expenditure should be recorded in such a manner that regular monthly statements of it can be returned. Only such items as are chargeable from outside sources and in respect of which it is impossible to obtain monthly invoices should be dealt with by the reserve method.

The author wishes to emphasize this point as strongly as possible. Some firms have been accustomed to making up monthly accounts largely based upon estimated and not actual expenditure. Such "accounts" are, of course, not actual records of what has occurred, but an estimate of what it is considered might or ought to have occurred.

Any attempt, therefore, to base a higher control system upon accounts made up in this manner is bound to be a failure.

It is of the utmost importance that the figures submitted by the accountant each month should be the actual figures of recorded expense in his books, plus reserves for any external expenditure that has occurred but for which an invoice is not obtainable. Reserves against possible losses on a contract or on stock values should never be included, as this will only produce "guesswork" figures and not actual results. Where it is anticipated that a loss will result from a contract or it is considered that stocks are valued too highly, "adjustments" covering adequate reserves to deal with these matters should be included in the adjustment section at the foot of the statement of account.

In studying statistical results, it should always be remembered that there is more than one point of view to be considered. For instance, the statement of account, if strictly drawn up, will give the profit or loss achieved during the period under review. It starts, however, from the sales turnover for the month, and in accordance with whether that turnover is high or low, the profit or loss for the period will be affected—in fact, the profit may turn into a loss if the sales turnover for some reason or another drops below the break-level point.

On the other hand, although the sales-turnover has been abnormally low, the manufacturing that has been proceeding in the works during the period may have gone on practically unchanged, and as a result most of the product manufactured may have gone into stock. To say, therefore, that the company has made a loss for the period is not accurate from the point of view of the potential sales value of the production effort, although it may be perfectly true from the point of view of the actual

trading result for the month. Naturally, a corresponding improvement will be shown when the stock is sold at a later date, and for this reason there is often a tendency amongst accountants to wish to adjust the statement of account in some manner so as to draw attention to this fact.

This can, of course, be done in the adjustments section, but in the author's opinion such a proceeding does not serve any effective purpose, since the whole idea at the back of the higher control method is to state clearly for the managing director's benefit what has actually occurred during the period under review. If the fact is that a loss has been made during the month, then the managing director should be aware of this in order that he can take steps to recoup that loss by a greater sales activity at a later date. To bring in an item in the adjustments for anticipated profit on the subsequent sale of the increased stocks and work-in-progress, and so make the position look better, in the writer's opinion is to defeat the object of the control method. The theory is that this procedure has an equalizing effect upon the monthly results, and when the stock and work-in-progress falls again through the increased sales turnover, the profit comes out in the statement of account and the adjustment at the foot of the page can then be deleted, bringing the figure of "final profit after adjustment" to approximately what it had been previously.

The author admits that there is a strong element of personal predilection in control work, and what may to one man appear to be a clear and common-sense method to another appears to be misleading. But the fact remains that any method which tends to turn the accounts of a business from reality into theory introduces an element of uncertainty which is against the principles of control, and should not be adopted.

In use it has been found that there is a need for a simple

monthly statement which sets out the sales value of the production during the period, and the make-up of that production in the main categories of expense. Production costs should keep more or less steady, and the sales value of the production during the month should therefore show a more or less steady percentage of surplus from which residual charges can be paid and profit left over at the finish. To obtain such a statement, it is necessary to express the rise or fall of stock and of work-in-progress in sales value, since the production value for the month is represented by the sales turnover for the month, either plus the sales value of what has been manufactured and put into stock, or minus the sales value of what has been taken out of stock and sold.

At this point the author desires to emphasize that these calculations must necessarily be of an approximate nature. As will be shown later, they are principally of value as a check against the closing stock figure and the figure for direct material used. No doubt, with a good deal of trouble, it might be possible to achieve close accuracy, but the work involved would not be worth the result attained. The method here set out has been used for a number of years in different companies. It has been found to be quite sufficiently accurate to give the necessary check on the control figures.

As stated above, the sales turnover for the month consists of the invoices recorded in the sales ledger either plus the sales value of the increase in the work-in-progress or in finished stocks (where the goods are manufactured on a short process and warehouse stocking is the rule), or minus the sales value of the goods that have been taken out of stock and sold during the period. It is necessary, therefore, to find some method by which the sales value of this stock rise and fall can be ascertained; how this is done has already been shown in Chapter IV (pp. 48, 49).

If the ratio of sales turnover to cost of goods sold be taken it will be found usually to remain at a fairly steady figure. Objections are sometimes raised that in a manufacturing concern having a mixed output the cost of the goods sold is bound to depend upon the make-up of the month's turnover, since if it happens to be a month in which the sales turnover consists of goods in which a large profit is obtained then the cost of goods sold will be lower than in another month when sales turnover is principally made up of goods of a less profitable nature. In actual practice these objections will be found to have little weight, since it is only in the most exceptional cases that sales turnovers change their make-up drastically in this fashion. Normally, the law of averages seems to result in the sales turnover of a given business being made up in much the same proportions month by month, whether of profitable or unprofitable goods, and any difference in that make-up is seldom sufficient to make the ratio of sales turnover value to cost of goods sold vary more than a point or two either way. If, therefore, we multiply the rise or fall in stock value by the ratio thus obtained, we shall have the sales value of the stock rise or fall.

By adding or subtracting this from the recorded sales turnover, as the case may be, we arrive at the sales value of the production for the month. Against this we can now set the direct labour recorded during the month, the direct material used during the month, and the factory oncosts expended during the month. The sum of these three subtracted from the sales value of production gives us the working surplus for the month. The residual charges recorded in the Statement of Account consist of the company overheads, the fixed charges, and the special charges; having deducted these it is possible to see whether the production effort for the month has produced a surplus or a deficit.

It is important in these calculations to utilize the figure for direct material *used* and not the figure for direct material *purchased*, which is shown in the Statement of Account. In the case of the latter, it is the purchase ledger figure for the period which is taken, and any material which has not been used during the period remains in the closing stock figure, and is therefore automatically deducted from the cost of goods sold. Since it is frequently the practice to purchase bulk stocks of material in view of a possible rise in price, it is quite possible for the direct material figure for the month to be considerably in excess of the actual material that is used.

An example of the calculation described above is shown in Fig. 41.

#### RATIO OF SALES TURNOVER TO FACTORY COST

Month of Number of Working Days	SEPTEMBER 22	
SALES TURNOVER . . . . .	£	18,171
<i>Cost of Goods Sold</i>		
<i>Direct Labour</i> . . . . .		2,593
Direct Material Purchased . . . . .	8,352	
Opening D.M. Stocks . . . . .	29,754	
	<hr/>	
Sum . . . . .	38,106	
Closing D.M. Stocks . . . . .	32,067	
<i>Direct Material Used</i> . . . . .	<hr/>	6,039
<i>Factory Oncost Incurred</i>		
Indirect Labour . . . . .	1,559	
" Material . . . . .	988	
General Charges . . . . .	582	
Standing " . . . . .	331	
	<hr/>	3,460
		<hr/>
Total Factory Cost—		12,092
Opening work-in-progress . . . . .	29,948	
Closing " " . . . . .	26,418	
	<hr/>	
Add w.i.p. fall (completed and sold) . . . . .		3,530
Deduct w.i.p. rise (in hand and not sold) . . . . .		<hr/>
		15,622
Total Factory Cost of Goods Sold . . . . .		
Sales Turnover Ratio to Factory Cost . . . . .		116.1%

FIG. 41

Having now obtained the total factory cost of the goods



sold it becomes possible to work out the sales value of the production for the period and the percentage make-up of the factory cost. An example of this calculation is shown in Fig. 42. This may appear to repeat much of the data given in Fig. 41, but this has been done to show clearly the working method. If this calculation be made each month, any variation in the factory cost percentages can be watched, and this will be found to provide a useful check on the accuracy of the monthly results submitted.

PERCENTAGE MAKE-UP OF SALES TURNOVER VALUE  
OF WORKS PRODUCTION

Sales Turnover	.	.	.	.	.	£	18,171
Factory Cost of Goods Sold	.	.	.	.	.		12,092
Ratio	.	.	.	.	.		116.1%
Opening work-in-progress	.	.	.	.	.		29,948
Closing " "	.	.	.	.	.		26,418
w.i.p. rise of	.	.	.	.	.		—
" fall of	.	.	.	.	.		3,530
Sales Turnover Value of this ( / by Ratio)	.	.	.	.	.		4,125
Sales Turnover	.	.	.	.	.		18,171
Add S.T.V. of w.i.p. rise	.	.	.	.	.		—
Deduct " " fall	.	.	.	.	.		4,125
Hence total S.T.V. of Works Production							14,046
<i>Percentage Make-up—</i>							
Direct Labour	.	.	.	.	£	0	18.4
Direct Material Used	.	.	.	.			43.0
Factory Oncost	.	.	.	.			24.6
Total Factory Cost	.	.	.	.	<u>12,092</u>		<u>86.0</u>
Company Overheads	.	.	.	.	1,204		8.4
Fixed Charges	.	.	.	.	161		1.1
Special Charges	.	.	.	.	<u>385</u>		<u>2.7</u>
Total Residual Charges	.	.	.	.	<u>1,750</u>		<u>12.4</u>
Total Expenditure	.	.	.	.	13,842		98.4
Surplus for period	.	.	.	.	<u>204</u>		<u>1.6</u>
T.S.V. of Works Production	.	.	.	.	14,046		100.0
<i>Justification—</i>							
Add S.V. of w.i.p. fall	.	.	.	.	4,125		
Deduct S.V. of w.i.p. rise	.	.	.	.	<u>—</u>		
Sales Turnover, as per Statement of Account					18,171		

FIG. 42

It should be borne in mind that unless stock accounts have been kept on Control Account principles with perpetual audit in force, there is no possibility of checking the accuracy of closing stock figures except by a method of this nature. If a casting error occurs or, which is by no means impossible, a portion of the stock record is overlooked, then the closing figure will be short of the actual figure; the error will show as a loss for the period, and probably come back as a profit during the next month. Rectification of the error will, of course, make the cumulative figure for the period correct once more, but in the meantime a false impression will have been given to the managing director, and possibly investigations will have been set on foot which will naturally prove useless as there was, in actual fact, no unusual loss to investigate.

In the author's opinion, this calculation for comparative purposes of the monthly working surplus and the percentage make-up of the sales value of production is a management tool of considerable value. From it can be found the £ sales value per £1 direct labour, the £ net output value (B.O.T.)<sup>1</sup> per £1 direct labour, the true profit for the period, and other matters, all of which have direct bearing on the control of the business. Most of the data should be presented on a "per working day" (or p.w.d.) basis, i.e. the actual result divided by the number of work-

<sup>1</sup> *Net Output*.—The Board of Trade, in the "Census of Production," defined the "Net Output" of a firm as being the figure which results from deducting from the value of the gross output the total value of—

- (a) All materials used, whether direct or indirect.
- (b) Amounts paid for "work given out."
- (c) Excise duty included in the value of the products, and not in that of the materials used.
- (d) Carriage outwards and returnable cases.
- (e) Discounts.
- (f) Depreciation reserve for plant and machinery.

i.e. "Net Output" represents the value added to materials by the industrial processes, and constitutes the fund from which wages, salaries, rents, royalties, rates and taxes, advertisement and selling expenses, and all other similar charges have to be provided, as well as profits.

ing days in the period. Since the calendar months, or the 4—4—5 week periods, for which the figures are prepared, vary in the number of working days they cover, it is only by checking up the results on a production basis that true comparison can be obtained.

When the original description of this method was published, the value for control purposes of the continuous monthly comparisons of the latest results with the previous ones was perhaps taken too much for granted. Practical use of the method in industry has emphasized that in this comparison lies the basis upon which "control" is really built. Remedial action cannot start until there is a clear case proved for the necessity for such action, and then the gradual improvement can only be observed by a study of the monthly results, combined with the watching of the movement of the trend. The board returns are themselves merely milestones, the records of the facts month by month. To watch whether the position is getting better or getting worse, it is necessary to compare the figures recorded in the board returns as they come out month by month, and to do this it is necessary for those figures to be presented in a manner which permits of easy comparison. For this purpose it has been found convenient to use a 14-column Comparison Sheet illustrated in Fig. 43. This sheet is 14 in. wide by  $12\frac{3}{4}$  in. high, ruled horizontally so that it is suitable for single-space work on a typewriter. It will be seen that the first column is headed "final"; this is used to carry forward results from previous sheets. Then come 11 columns without headings, and the 12th is a double column headed "interim" and "final." This has been found necessary to meet accountancy requirements for the closing month of the financial year. The board returns are sent in as usual for that month on interim figures and entered in the interim column. These provide the normal monthly comparison.



When the books of the company have been finally audited, all adjustments made, stocks depreciated or revalued or such other action taken as the managing director, the company's accountant, or the auditors may think necessary, a fresh set of final figures for the month is issued. These are entered in the "final" column. From these final results the twelve-monthly result for the year is made up and all trends adjusted to the new figure from which they will start on their movement through the ensuing year. To deal with this on the charts it is customary to show two points in the space for the closing month, joined by a vertical line—the trend, so to speak, steps up or steps down to the position recording the final result for the year, and then goes on month by month as before. As this operation occurs each year, the moving annual totals will only shift by the amount of the difference in the final adjustments of the two final months.

These Comparison Sheets should be used for entering up every figure that is shown upon the board returns each month. Once these entries have been made, the board returns themselves serve no further purpose, and can be filed for reference if needed. The Control Reports, with their recommendations for action, and comments on increase or decrease of income or expenditure of any kind, are based upon a study of the Comparison Sheets, and it is for this reason that it is desired to draw the attention of their importance to those who wish to use this method.

Another working sheet that has been found of great value in this control work is the Trend Sheet, shown in Fig. 44. This is arranged so that two items can be recorded side by side and three columns are provided on the right-hand side for percentages if desired. It is of normal foolscap size, and ruled horizontally to take 48 months, so that the sheet should last for three years, whatever month the company may adopt to end its financial year.

Orders received, invoices issued, sales turnover figures, works statistics, profit and loss results, etc., can be entered on these sheets each month when the cumulative and moving annual total figures are calculated. The Trend Sheets provide a valuable check survey of the results for the past three years, and are used when making up the various charts used by the managing director, and also in preparing the Control Reports.

There is a further aid to the clerical side of this control method which has been found of the most practical value, and that is the provision of a Working Book. The various statistics needed for the whole system come from different sources. The figures for orders received and orders outstanding will probably come from the sales department; invoices issued may come from the sales department or from an independent invoices section of the accounts branch; the trading position figures will come from the accounts branch, and the works statistics will probably be sent in by the pay office or by the works manager's office. Even though printed or duplicated forms may be used, there is always a danger that these may go astray, and it has therefore been found of considerable value for the control assistant to keep a Working Book in which all these figures are entered and kept together in their appropriate sections. Cumulative and moving annual totals can then be worked out actually in the book, and remain in evidence for checking purposes if an error should be subsequently discovered.

It is human to err, and occasions arise when groups of moving annual totals will not check, or when the cumulative figure does not correspond with the moving annual total at the end of the year. It is therefore important to be able to go back over the simple calculations and so find where the error has occurred. Unless a Working Book of this nature is used—it can be a plain, strongly bound,

toolscap book, stout enough to last through a year of hard use—there is a tendency for these calculations to be done on scrap paper, the results entered in the Trend Sheet or the Comparison Sheet, and the paper, upon which the figures have been worked out, destroyed. Thus, if an error is subsequently found, it is not possible to check over the previous calculations, and the entire series has to be re-worked in order to find out where the mistake is. The author recently had a case where an error eleven months old was found and rectified in ten minutes, owing to the fact that all the calculations were in the Working Book. Had that not been the case it might have entailed the re-working of several hundred results to locate the error, since the control system was a large one, and there was little evidence to indicate where the error lay.

It may be advisable to re-state once again at this point that management control work is not a system of accounts, although it can only be successfully carried on where a sound accounting system exists. To build up the necessary framework of statistical control requires a knowledge of the fundamental principles of sound industrial accounts, but to use that control for management purposes does not necessarily call for that knowledge. The managing director, the controller, the trustee—or whoever is responsible for the maintenance of an industrial undertaking in a state of efficiency—requires to see a true picture of what is happening in that undertaking, and that picture should be prepared for him by those who are not only versed in the principles of accountancy but also fully alive to the problem of management. Once the picture has been prepared, the managing director can exercise his powers and talents in the most effective manner instead of working, as he so often has to do, in the dark.

## CHAPTER XI

### THE CONTROL REPORTS

WE have seen that the working tools of higher control consist of a standardized set of board returns and two monthly reports. The board returns contain the vital statistics which it is necessary for the managing director to know, and the two reports deal with those statistics and provide concise explanations to account for the successes or failures which the figures record.

The first report, usually known as Part I, deals with the business and technical positions of the company, and the second, or Part II, analyses and explains the trading and financial results. From the point of view of historical record it may be interesting to state that in the early research work on higher control both reports were combined in one. It was found, however, that the analysis and explanation of the business position, which deals with the orders received and invoiced during the month under review and the orders outstanding at its conclusion, had lost almost all its value if its presentation to the managing director was delayed until the company's books were closed for the month, and the trading and financial position ascertained.

In a sense, the business position is the key to the success or failure of the concern. It is of the highest importance that the managing director should know as soon as possible whether his orders and/or invoices for the past month have increased or decreased, and to get this information in the second or third week of the following month—and few concerns to-day of any size can close and make up their books before that time—is of no use to him at all. He has already obtained approximate figures from some



other source, dealt with and forgotten them, and is well immersed in the current month's happenings.

One of the first requirements of higher control work is that the figures should be submitted with the absolute minimum of delay, and as the business figures have no real connection with the company's books proper, orders received, invoiced, and outstanding should be totalled day by day, and so be ready for analysis and explanation the moment the month closes.

In view of this, the original single explanatory report was split into two parts, and this has been found to be a much more satisfactory method of working. The moment the month is completed the business figures and the technical aspect of affairs can be dealt with, and the Part I report laid before the managing director with only such delay as may be entailed by typing, making up, and copying the charts. This usually takes two to three days, and it should therefore be possible for the managing director to have before him the analysis of the business results for the month just completed by the evening of the third or fourth day of the following month at the latest, whilst matters are still fresh in the minds of all the staff.

This enables the managing director to take at once what steps may be necessary. Sales conferences can be arranged, sales managers interviewed, new plans of campaign made, or the old ones adjusted, and by the end of the first week of the new month the field should be set for whatever offensive may be required to improve the position or retrieve lost ground.

When the profit and loss account and the balance sheet for the month have been drawn up, the trading and financial figures can be taken and the Part II control report prepared. It is usual to send out Part I first temporarily in a cover, and, when Part II is ready, to

recall Part I and bind the two together. In this manner the complete results for the past month are available for the board meeting, and form the intelligent explanation of the board return figures which will be the principal information laid before the directors.

The word "report" to some people conveys a bulky document which is usually stuffed reluctantly into a despatch case and taken home for reading during the week-end. In this connection, as far as higher control is concerned, objective (*d*) should be borne in mind by those who are responsible for conducting the work.<sup>1</sup> Diffuse and wordy essays should be avoided like the plague, and only such summary of the results should be provided in these reports as will enable the managing director to obtain a quick and clear picture of what is going on. Any results which are normal should be left entirely alone, and attention should only be drawn to abnormal items.

It is very important that the time of those in responsible positions should not be wasted by their being compelled to extract what is important from that which does not matter. Throughout the whole of the higher control reports this should be kept in view, and any tendency to verbiage for the sake of making the report look voluminous should be strictly repressed.

It will be seen from the pages that follow that the board returns are in effect the central statistical backbone of the whole structure of higher control. This is as it should be, since all industrial activity must, sooner or later, be reduced to statistical results, and the board returns, therefore, should not be considered effective unless they present all the key figures of the concern. These figures are then entered up month by month in fourteen-column Comparison Sheets, and in this manner an immediate

<sup>1</sup> See p. 37.

survey of the monthly variations can be obtained by the manager or his control assistant. This survey is where "control" begins, and on it is built the "Action Stage" shown in Fig. 17. The reader will find more detailed reference to this vitally important side of control work in the chapter headed "Checks and Comparisons."

The control reports are important in the sense that they present a concise explanation of the fluctuations of the figures in the board returns, and the fact that the business and technical position report (Part I) is issued a fortnight or so ahead of the submission of the actual board returns only arises from the urgent need for the minimum of delay in the presentation of the business figures for the month. These primary figures discussed in the Part I report appear in the board returns as B.R. 1, and in a single sheet provide the link between the business figures and the trading and financial statistics provided by the accountant's office.

It is quite possible to cut out the two reports altogether, and work a satisfactory higher control system on the board returns only, as long as those responsible for the concern are so well in touch with the occurrences of the business as not to require any explanation of the figures. In a little firm, for instance, where the owner carries most of the responsibility on his own shoulders, a simple set of monthly board returns, supported by the necessary line charts, would probably give him all he needs to know, and enable him to keep his finger on the position of his business without difficulty. It would naturally be unnecessary for his secretary, let us say, to type out a report to himself on the state of affairs unless for any reason he wishes a record to be kept of what has occurred. The record aspect of the control is apt to be of considerable value when comparing present results with past ones, but the main importance in higher control lies in the board return figures, the reports, useful and important as they are,

are only an explanation of those figures and not the primary purpose of the control.

No managing director should be expected to dig about amongst details; that should be done for him by an assistant whose time is not so valuable. But that digging must be done, or a great deal of the value of the control will be lost. The causes governing the changes in the situation each month must be sought for and established, and set out in as few words as possible, so that the busy man can rely upon his attention being drawn to anything of importance.

This, after all, is but logical. We start by reducing to an absolute minimum the statistics laid before the managing director, but interlocking those statistics in such a manner that nothing vital can move one way or the other without that movement being indicated on a simple schedule or chart. But it is not enough to know that something has taken place—we must know clearly what it is, and why it occurred. The managing director must eternally be asking “Why?” and an answer to that “why” must be provided. In higher control it is provided in the two reports, and where a control is installed and working properly, the reports should form a *précis* of the industrial history of the concern, month by month.

It has already been pointed out that the reports can be omitted altogether, and the control will still function. That is true, and it is due to the fact that higher control is built upon the fundamentals of management that the technical details of the control can be contracted or expanded in accordance with the desire, the capacity, or the inclination of the managing director or the board. It is possible to stop at the simple Statement of Account, or it is equally possible to go on to the full set of board returns with the two explanatory reports backed by wall charts for the board-room. It is purely a matter of

the degree to which those who are responsible for the safe conduct of a business desire to control that business. Working on the Statement of Account alone will give some degree of control; but if the reports be cut out it can safely be assumed that a very considerable proportion of the benefits that can be obtained from this higher control method will be lost.

With regard to the important question as to who should prepare these reports, it seems to be best for some person of intelligence to be appointed "control assistant" to the M.D., and to be responsible for putting the reports together and making up the charts. The Part I report combines the business and technical aspects, and the Part II the trading and financial aspects. Part I will therefore start with the figures for orders received, orders outstanding, and invoices issued; brief comments will be made on the fluctuations of the trend curves, and on any good or bad indications that are beginning—or continuing—to show up. Then will come the sales manager's report, untouched, followed by the works manager's, the chief engineer's, and that of the personnel manager. The control assistant should know enough about the management of the place to be able to prepare a short final summary, setting out whether the month under review has been a good, normal, or bad one, and why. In the Part II will come the trading results for the period, analysed by the chief accountant for good or bad performance, and why, together with such matters relating to his own department as he may wish to report on. The secretary or cashier will follow with comments on the balance-sheet and the asset variation statement, and such details in connection with the finance or the management of the general office as may be worth recording. The control assistant will then again prepare the summary, and the whole should form a useful record

of the company's progress for the month, which, with the board returns themselves, can be easily assimilated by a busy director who has little time to spare from his other interests for that particular company.

It will be found that the practice of making deductions from the statistical fluctuations is very soon learnt by an intelligent assistant, and if the managing director makes that assistant responsible for explaining the monthly movements of the figures, the time required for investigations by the managing director himself can be reduced to the absolute minimum. The departmental heads should be informed that the assistant, in asking for explanations, is doing so on behalf of the managing director, and therefore all possible help should be given him to make clear the position. In fact, practice has shown that a great deal of very valuable management work can be done by a tactful and helpful assistant, as the departmental head comes to value the monthly examination of the figures from the management standpoint. Such discussions often end in a note in the monthly report to the effect that "Mr. Blank has gone into this matter carefully, and made arrangements to prevent it happening again." All that is a saving of the managing director's time.

#### THE BUSINESS POSITION REPORT (PART I)

In making up the Part I Report on the business position at the start of a control, it should be borne in mind that individual attitudes towards statistics must be humoured.

When the managing director is studying the detail figures with his last financial year's results at the back of his mind, he naturally tends to compare results for the new month with those of the previous month, so as to obtain an impression as to whether the passage of the monthly period has resulted in more or less business. Once that is noted, the mind turns to whether the results of

this year are as good as those for the same month in the year before. This is an important comparison, as, almost all businesses being subject to seasonal influences, the fact that the month under review was better than the month before may have been due to seasonal causes, and the comparison with the same month in the previous year will give a truer impression as to whether trade is really improving or not. This is, of course, apparent from the M.A.T. line on the chart, but it is so important a feature of the control that it will bear emphasizing.

In practice, it seems that individual minds differ in their normal approach. One man is used to cumulative figures, and prefers working with them. Another is accustomed to moving annual totals, and goes straight to them. To meet this fact, it has been found best to provide a complete set of comparative results, so that any desired check is available immediately.

In order to embody this information in a simple form in the smallest possible space, the following method is suggested—

## ORDERS RECEIVED—MONTH OF OCTOBER

	Last Month, September	This Month—October		Rise or Fall from Last Year
		This Year	Last Year	
Current .	£ 31,942	£ 30,778	£ 37,608	18.1% fall
Cumulative.	270,436	301,214	391,181	23.0% fall
M.A.T. .	383,409	376,579	446,338	15.6% fall

M.A.T. fall of £6,830 = 1.8% compared with last month.  
M.A.T. of total orders received at end of last financial year was £466,546; i.e. present trend shows 19.3% fall; last month showed 17.8% fall.

FIG. 45

This gives all the natural comparisons in very little more

space than would be required merely to state the three results for the month under review.

After this statement of the primary position of the company with regard to orders received, the secondary position figures may be recorded in tabular form, the current figures for the month being compared with the current figures for the past month, and the same month in the previous year.

Having regard to the importance of the moving annual total as an instrument in management control, it is usually found advisable to include under the heading of orders received a table showing not only the current and cumulative results for the month, but also the moving annual total results compared with those at the end of the previous financial year. This completes the comparison necessary for a full appreciation of the order position and ensures that the managing director has at hand all the information he is likely to need without having to refer back to former results.

But the orders received are of such major importance to the managing director that they may be analysed even further within reasonable limits. Orders may be reviewed under territories or under salesmen, but care should be taken to ensure that this review is not made too complicated or the object of the control report will be defeated. One sheet of figures may be permitted, and any further information should be the subject of a special report to the managing director, if called for.

It is customary for the sales manager to write the comments on this part of the control report. He is responsible for obtaining orders for the company, and it should be up to him to make a short précis of the month's results, including comments on future possibilities. It is sometimes objected that the sales manager is a busy man and has no time for writing reports, but if he possesses



the proper knowledge of his job, such a précis should not occupy more than one hour a month in preparation and dictation, and the ultimate benefit that will accrue both to the managing director and the sales manager himself will make this hour's work well worth while.

In certain types of concern, where cash sales are the rule, or delivery is given from stock, or where perhaps bulk contracts are accepted and deliveries are made to instructions, the activity of the concern may be more clearly indicated by the movement of the invoices. But when all is said and done, the product must in some way or other be sold, and if orders in one form or another are not received, the business will disappear. The managing director, therefore, should satisfy himself as to the best method of ascertaining the rate at which his goods are being ordered, and the report should comment on the success or failure of the month's effort to obtain such orders.

The order book should be the subject of a survey each month; often it is helpful to analyse it into departments, so as to show which sections of the business are getting short of work, or which are overloaded. Here a little investigation by the control assistant can do good work by way of bringing up items where danger lies ahead, and commenting on them month by month until the position is once again satisfactory.

After the sales manager has commented on the results of the month under review, and the prospects for the coming month, the works manager, the chief engineer, and the personnel manager will add their surveys. The works manager can comment on output, technical difficulties or successes, the amount of work on hand, extensions made or required, or on new machines or processes which have been brought into action. The chief engineer can record progress on the experimental side, draw attention to new

patents or novel processes adopted by competitors, and the steps he is proposing to take to improve on these. He might mention failures reported by customers, and what action was being taken to prevent recurrence in the future. The labour manager could report on labour turnover, canteen affairs, any items of interest of a social nature that have occurred during the month, on visitors of importance, and perhaps as to the effects likely to arise from recent Government regulations. The whole series should cover any matter of importance that has taken place in the works during the month under review.

In practice it has been found that the preparation of short reports of this nature has a stimulating effect upon the managers concerned. The reports must be brief and concise—not more than a page of quarto—but even though brief, they form important links in the chain of planned management which the higher control method is designed to establish, and, in addition, induce the feeling that all senior members of the staff have the opportunity of drawing the attention of the members of the board to matters of importance that have occurred in their departments.

Two charts should accompany the business position reports—

- (a) The business position chart.
- (b) The trend of orders received chart.

The business position chart is illustrated in Fig. 46. It will be seen that this is divided into three sections covering respectively orders outstanding, orders received, and invoices issued. Throughout this chart the primary control figures only are illustrated, and all the actual figures from which the lines are plotted are included.

One single line is given joining up the points at which the order book stands at the end of each month, but in the case of orders received and invoices issued the moving

A

## BUSINESS POSITION

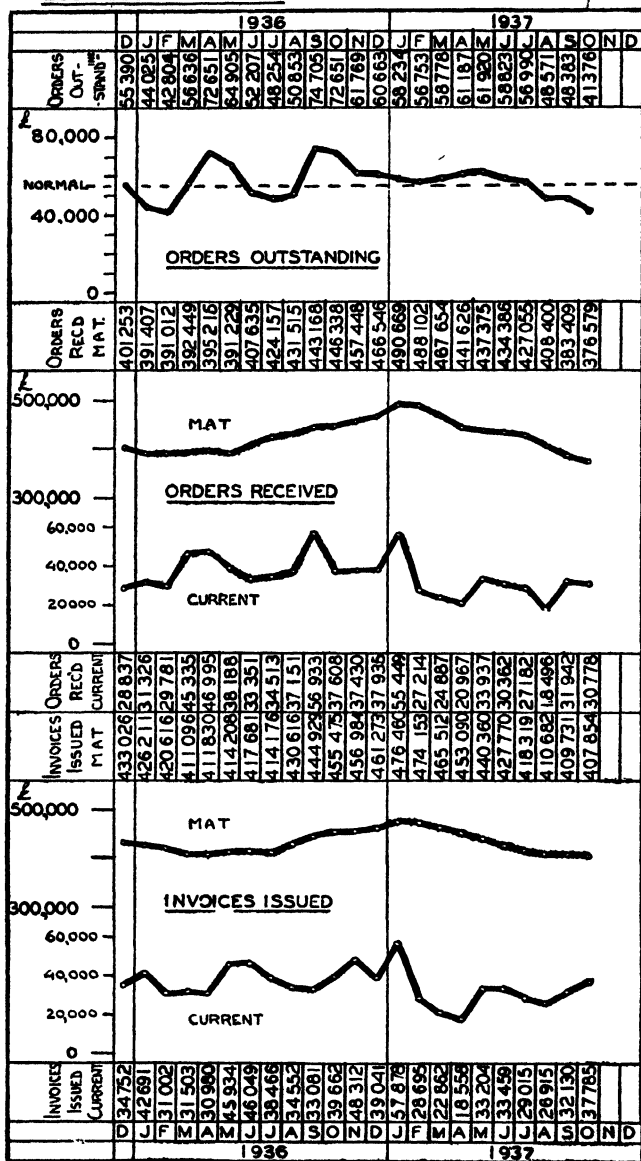


FIG. 46

annual totals and current figures are shown ; the cumulative figures, being less important, are omitted for the sake of clarity. It will be noticed that the scales for the moving annual total and current lines are different ; this is because fluctuations in the current figures would not be apparent if the same scale were adhered to throughout.

The second chart, showing the trend or moving annual totals of orders received in the various departments (Fig. 47), may prove puzzling at first sight. This chart is plotted on semi-logarithmic paper, the effect being that similar percentage increases or decreases appear as similar slopes in the lines plotted. This is not the place for an explanation of why this paper has this peculiar property, but if it be taken for granted that such is the case, much valuable information can be gleaned from the chart.

Supposing that two moving annual totals are shown on a piece of semi-logarithmic paper, one varying round about £50,000 and the other in the neighbourhood of £500,000. In a certain month both these fall by £10,000, that is, the former to £40,000 and the latter to £490,000. If these two results are shown on ordinary squared paper the drop will appear identical in both cases, and the significant fact that the former has fallen by 20 per cent and the latter by only 2 per cent may be overlooked. On semi-logarithmic paper this false impression is rectified, and the two falls assume their correct significance. Consequently the attention of the managing director is drawn to the serious fall in the one trend from £50,000 to £40,000, and he can take steps to push up sales in this direction, ignoring the less serious fall from £500,000 to £490,000 unless it continues in the following month.

There is a further feature of this semi-logarithmic paper which makes it useful for control purposes. It will be seen in the example given that three-deck paper is



### TRENDS OF ORDERS RECEIVED

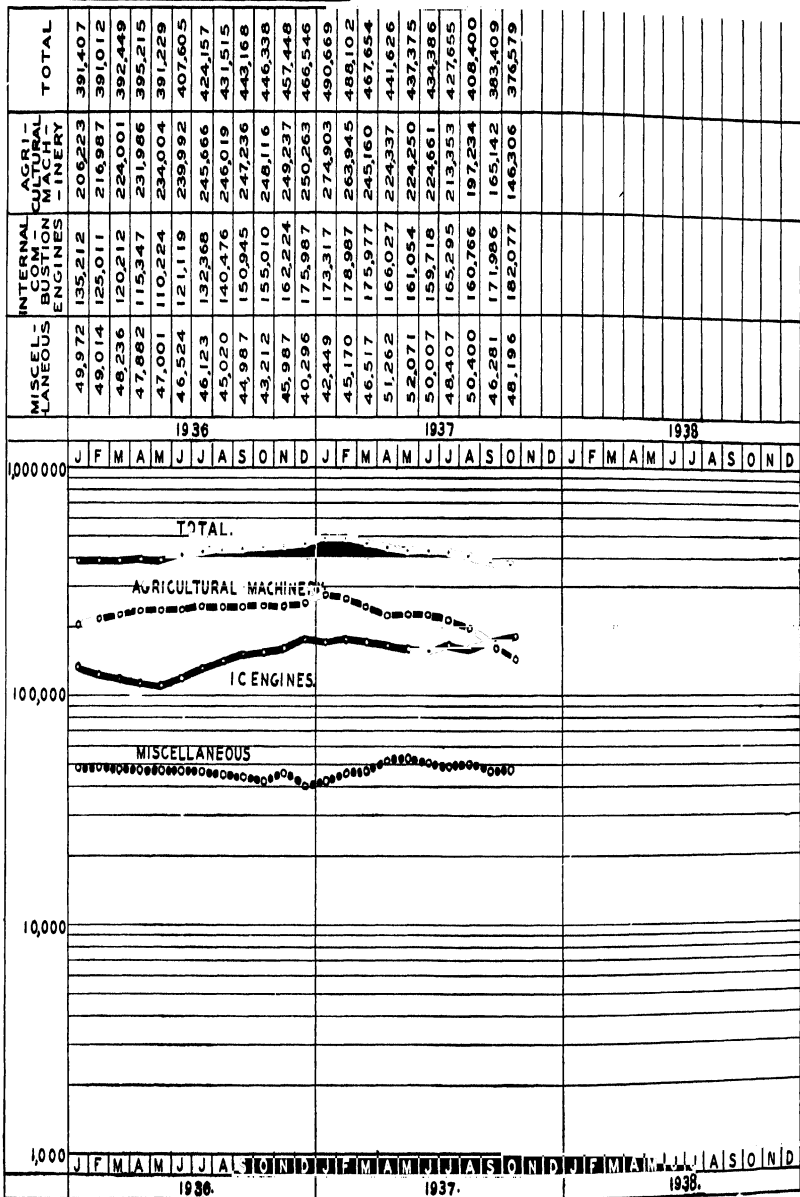


FIG 47



used, and it is possible, therefore, to include figures that range between 100 and 100,000 or 1,000 and 1,000,000—or similar powers of 10. As in control, the principal fact that it is desired to establish is whether matters are getting better or worse, or, in other words, whether the trends are going up or down, the use of paper of this type enables a number of trends to be shown on the same chart field without danger of their interference with each other, and without change of scale. The relative slopes of the lines are of secondary importance in watching these trends, the main point being whether they are rising or falling, and this can be seen almost as readily on semi-logarithmic paper as on ordinary paper.

With the information set out in the foregoing pages, and the two charts, the managing director will have at his disposal, two or three days after the conclusion of the month under review, not only a clear and accurate picture of the changes that have recently taken place in the business under his guidance, but also information on which he can base his policy with a feeling of security enjoyed by few who are responsible for the direction of affairs at the present time.

#### THE TRADING AND FINANCIAL POSITION REPORT (PART II)

When once the board returns for the past month are available it is possible to make up the Part II Control Report by analysing the trading and financial positions of the company.

It is a matter of importance that this Part II should be in the hands of the managing director before the day of the monthly board meeting, in case it should reveal anything that may call for discussion at that meeting. To ensure this it is desirable that the board returns should



be ready a week before the date of this meeting, and no excuse should be accepted for failure to comply with this condition. It may even, in some instances, be advisable to alter the date of the board meeting, so that sufficient time is available for the preparation of the control.

In this matter the tail should not be allowed to wag the dog. To refuse to take advantage of control methods "because there is not time to get out the figures before the monthly board meeting" is surely a distorted view of the value of recorded results. Some figures, in all concerns, are always placed before the board each month. If previously the figures presented were limited by the time available between the closing of the books and the board meeting, and with the more complete requirements of control methods this time is not sufficient to prepare the control statements and charts, then it is better to postpone the board meetings until adequate time is available. After all, the board requires full information, and to hold a meeting with inadequate data when a few days later full control results would have been presented, merely to avoid a change in board meeting dates, is scarcely sound policy from a director's point of view.

The form of the trading position report resembles that of the business position inasmuch as it is divided into a primary and secondary control. The primary control consists of an analysis of Board Returns Nos. 2, 3, and 4, and attention is here drawn to any fluctuations in the figures shown on these sheets. It is more difficult to draw a hard and fast line in this part of the control between the primary and secondary results than it is in the case of the business position figures and, where a multiple-unit firm is concerned, references may often have to be made under the primary control to the secondary results, which can then be dealt with more fully under their own particular section.

The following schedule may be of assistance in determining where the division between the primary and secondary results should lie—

## SINGLE-UNIT CONCERN

- (a) Primary control.  
Results of whole company.
- (b) Secondary control.  
Results of individual departments.

## MULTIPLE-UNIT CONCERN

*Whole Company*

- (a) Primary control.  
Results of whole company.
- (b) Secondary control.  
Results of each factory. (Works "A," "B," etc.)

*Works "A," "B," etc.*

- (a) Primary control.  
Results of each works.
- (b) Secondary control.  
Results of each individual department.

This arrangement is, however, subject to various alterations to meet the needs of the company under review.

In considering the trading position of a company on the lines suggested above, there are certain salient points in the primary control which call for comment.

For instance, the control assistant should make a point of drawing the attention of the managing director to the actual manufacturing cost and resulting actual profit or loss on the sales turnover which cannot be gleaned from a cursory glance at Board Return No. 2. On this sheet

the cost of goods sold includes any under- or over-absorption of overheads, and consequently does not represent the actual cost of the individual jobs that go to make up the sales turnover, though it does show the total cost to the factory of the goods sold during the course of the month. This point was mentioned in discussing the sales analysis summary, but its importance lies in the fact that it does definitely show the managing director whether his sales department are quoting prices to customers that are fair to himself, or whether these prices are being so cut that it is impossible to make a factory surplus even if the factory be working to capacity. It is, of course, equally possible, in the case where the actual manufacturing cost exceeds the sales price, that it is the works that are at fault, but when once the attention of the managing director has been called to the fact that the selling price does not cover the manufacturing cost, he can then institute an inquiry as to the reason for the resultant loss.

In handling the second part of the control report, it is found useful to repeat the information given on Board Return No. 2 in a slightly different form. This is not strictly necessary, but it does avoid cross-reference from the report to the board returns when the former is under consideration.

Figure 48 on page 241 is put forward as a suggested form for the first page of the trading position report.

In this section of the report the trend method can be applied with just as much success as in the business position. Assuming that the sales turnover trend remains fairly steady and the factory is working at a more or less normal output, the trading position trends will probably be equally steady.

All fluctuations either above or below the normal should be noted, as a falling-off in the results calls for immediate attention on the part of the managing director, while any

improvement should be reported to enable the managing director to express his satisfaction in the right quarter and give every encouragement to all concerned.

Sales Turnover	£
Carried out at cost of	35,577
	<u>26,021</u>

Hence, actual Surplus on Turnover . . . 9,556 or 26.9%  
But under-absorbed Factory Overheads reduce this Surplus as follows—

Sales Turnover	£
Carried out at cost of	35,577
Under-absorbed Factory Overheads	<u>£26,021</u>
	383

Hence, actual Cost to Factory . . . 26,404

Representing—

A FACTORY SURPLUS of . . . 9,173

From this must be deducted £10,116 of charges, as under—

Exceptional Trading Expenses	£
Company Overheads	£98
Fixed Charges	9,102
Special Charges	500
	<u>416</u>
	<u>10,116</u>

Representing—

A FINAL LOSS for October of . . . 943

Previous results were—

September	Loss of	£
August	Loss of	1,841
July	Loss of	3,225
June	Loss of	2,903
May	Loss of	385
April	Profit of	382
March	Loss of	4,555
February	Loss of	2,918
January	Loss of	732
	Profit of	<u>9,408</u>

This equals a loss of £7,712 on the ten months' working, or at the rate of a loss of approximately £9,250 per annum; last month the loss was at the rate of approximately £9,025 per annum.

FIG. 48

It is, however, inevitable that the trend for exceptional trading expenses should fluctuate considerably, and although any undue irregularity in this trend should be noted and accounted for, it should be recognized that this

section is only fulfilling its proper function, and its variations have allowed the factory overheads and company overheads to continue along normal lines.

The functions of each of the separate headings on and arising from Board Return No. 2 have been explained in the chapter on the "Trading Position," but it may be of interest to run through these again, indicating a few of the points that are likely to arise in the control report.

#### SALES TURNOVER TO FACTORY SURPLUS

As a general rule it will be found that the percentages of direct material and labour in the sales turnover do not vary widely month by month. Fluctuations may be due to bad working conditions (such as inclement weather) or to an unusually profitable make-up of the sales figure. The law of averages seems to look after this last point, however, in most cases.

In making comments in the report, the effect of the stock adjustment on the total expenditure must be allowed for, in order that the correct make-up percentage figure can be obtained.

Stock variation should be watched, particularly where a steadily rising tendency is noted. It may be necessary to analyse the reason for this rise, in order to draw attention to the particular section in which stocks are increasing.

Factory oncost should remain fairly constant. Any increase over the normal monthly figure should be noted, and the reason given.

#### EXCEPTIONAL TRADING EXPENSES

These are bound to "kick." It is just as well to explain each month what expenditures have been recorded under this heading, in order to ensure that they are legitimate "exceptional expenses," and not in reality ordinary oncosts or overheads that have been taken out in error.

### GROSS TRADING PROFIT/LOSS

It is more difficult to establish a fixed percentage turnover for this figure, as even if the factory surplus is steady, the intervention of the exceptional trading expenses may upset the trend of the gross trading profit or loss. In large concerns this figure of exceptional trading expenses is not likely to form a large enough proportion of the total expenses to be deducted before the gross trading profit is reached to make much appreciable difference in the percentage on sales turnover.

### COMPANY OVERHEADS

Under normal working conditions there should not be much fluctuation in this section, and a considerable improvement or falling-off in business will be apparent before any great change shows itself. In the case of a firm whose salesmen work entirely or partially on a commission basis there will be greater variations which will show more rapidly than in the case of a firm whose salesmen are paid a salary only, although in this case the taking-on of more salesmen for an organized sales drive will immediately have the effect of showing an increase in the overheads.

### SUNDRY INCOME

This figure is liable to fluctuations, but these will probably be outside the power of the company to control in many instances, as they may depend upon current market prices and other outside influences.

Other sundry income may be due to the rent from cottages and houses on the company's estate, and this will, presumably, only vary when the property becomes vacant.

## SPECIAL CHARGES

As the charges included under this heading are taken to represent standing charges on a "dead" department, there should be no change month by month, unless, perhaps, it becomes necessary to make sundry repairs to prevent the property from falling into bad condition, and hence decreasing its potential selling value. Other fluctuations may, as in the case of the fixed charges, be due to faulty allocation on the part of the accounts department.

Where income tax is included in this category the amount allocated will probably be an equal monthly sum until such time as the tax is paid and the final adjustments brought in.

In dealing with the sales analysis summary in the chapter on the "Trading Position" it was stated that the items could be arranged as desired, either as individual jobs or as classes of products, or in any way that is most helpful to the managing director. But it should be borne in mind that if the information given on this sheet is divided into categories different from the subdivisions that appear in the business position, much of the value of this analysis is lost. It will not then be possible to verify the forecasts of profits that have previously been made from a study of the orders received figures in the business position.

The trend system of watching results is of great assistance in the secondary trading position control, more especially where a firm manufactures a variety of products which fluctuate according to the season.

For instance, it is conceivable that the total profit trend in the primary control should remain steady, while the departmental results are actually fluctuating widely, and unless the trend system is followed in each individual

department, it is difficult to see whether each department is producing the results expected from it at a definite time in the course of the year's working.

It is advisable, therefore, to keep trend charts for each separate department, and for these to be submitted to the managing director each month as part of his control report. The report itself, while detailing the actual monthly results, should comment on the fluctuations in the profit trends, as inquiry into a fall in trend may bring to light various points that might otherwise escape unnoticed.

Naturally when such a fall is revealed the first question that will arise will be whether the costs of material, labour, and overhead have exceeded their due proportion of the total sales value. But it is possible for the percentage of sales turnover to be up to the quota set, and yet that there should be a fall in trend owing to slow deliveries, which calls for a speeding-up at the works.

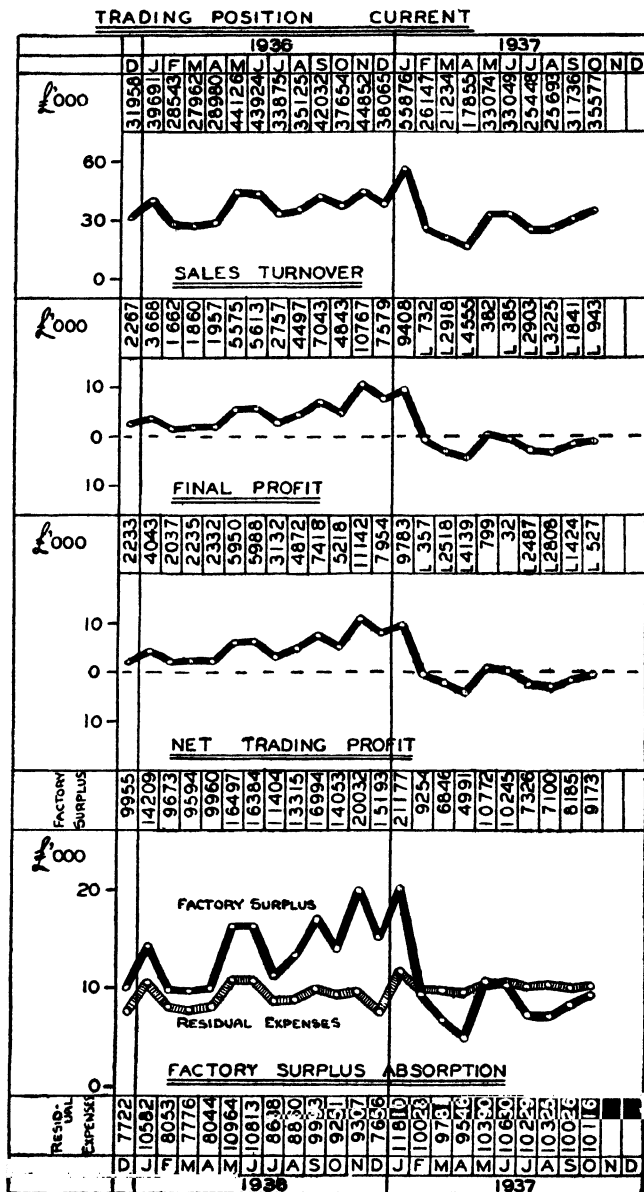
Normally, this should show up in the business position report as an increase in the order book and a drop in the sales turnover trend, but a suddenly large figure for orders received may have been taken as the cause for the order book rise, and the lag in deliveries may thus have escaped notice until the fall in the profits trend emphasized the point in question.

It may be noted here that in firms where a works control is in force as distinct from a company control, this point would show up on the works control multiple chart also. This aspect of affairs has been dealt with in the chapter on "The Technical Position."

Two charts should be sufficient to illustrate the trading position, and specimens are shown in Figs. 49 and 50. In Fig. 49 the sales turnover is shown at the top, and the final profit, the net trading profit, and the factory surplus



## HIGHER CONTROL



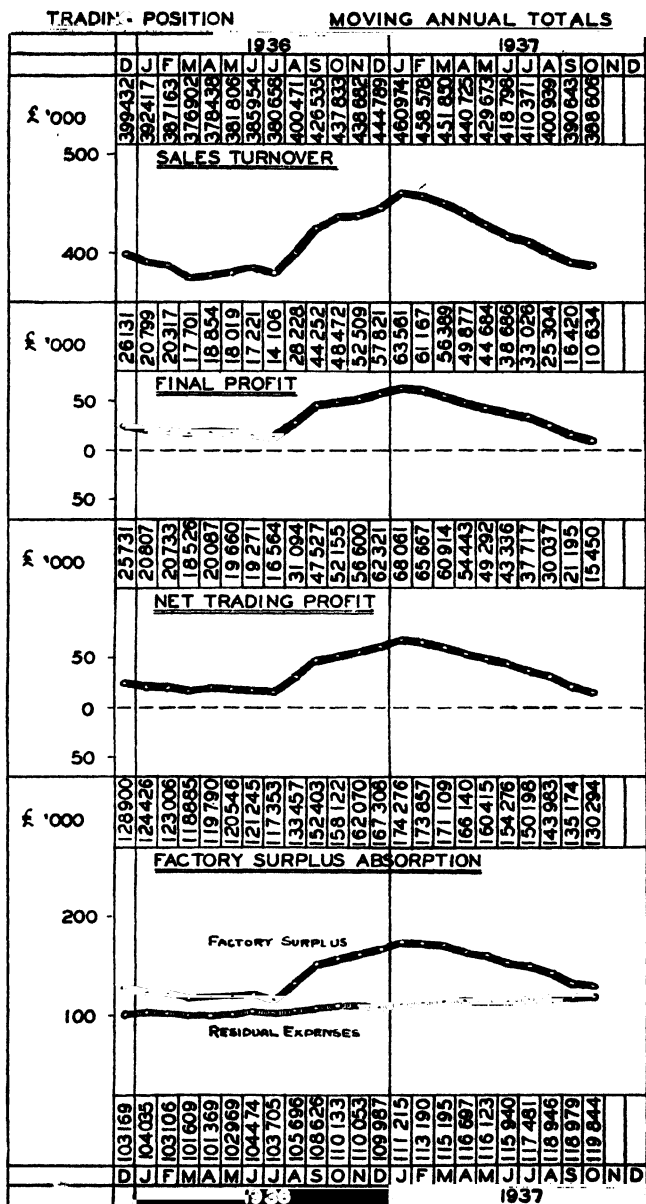


FIG. 50

compared with the residual expenses complete the sheet. These are the current figures for the month, and Fig. 50 repeats the same information, but with the trend results. It will be seen from these charts how much more easily the worsening state of affairs can be noticed by studying the moving annual total or trend.

Where it is desired to watch more closely the profit or loss performance, the departmental trends and current results can be set out, as shown in Fig. 51. In this manner the managing director can see which department is improving and which is doing worse, and so ascertain where his action is most needed.

The Sales Pound percentages have been mentioned in Chapter VII, and the charting of these results can often provide a useful and striking picture of the position. A specimen of a Sales Pound chart is shown in Fig. 52.

Since the total expenditure plus profit make up 100 per cent, the monthly percentage results, as they are entered, can be joined by a line, and in this manner a series of horizontal sections built up. These sections are shown in different shadings in Fig. 52, but are more usually coloured in actual practice.

The upper half of the chart shows the current monthly results, the lower the moving annual total results, and the sales turnover figures are placed in between for quick reference. On the right-hand side will be noted the normals.

The example given, built up on the figures of the imaginary concern for which the Board Returns have been made, shows clearly how, as the months passed, the falling sales turnover was not accompanied, as it should have been, by a reduction in expenses; as a result, the expense percentages increased steadily, and the profit percentage grew less and less.



# TRADING POSITION—DEPARTMENTAL FACTORY SURPLUS

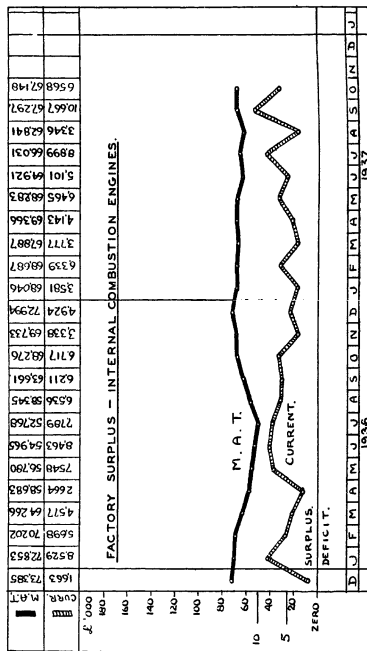
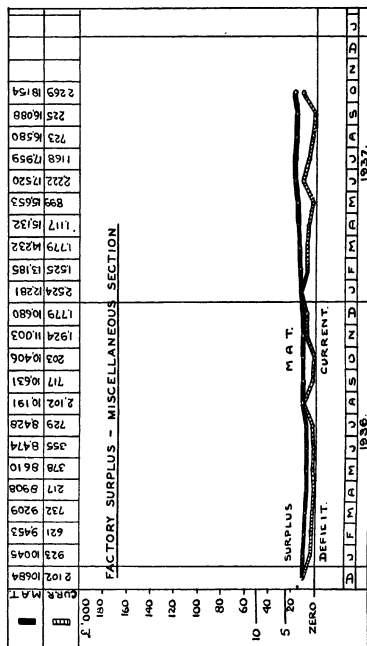
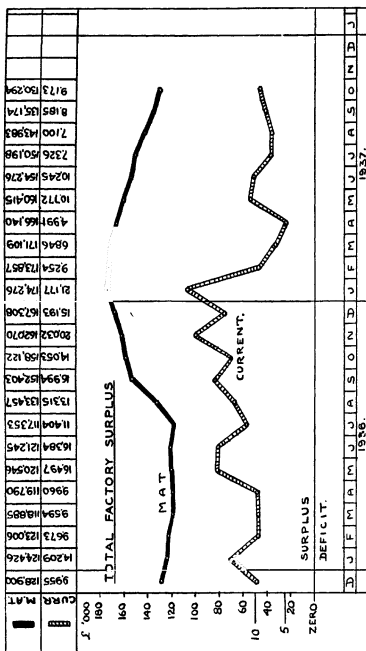
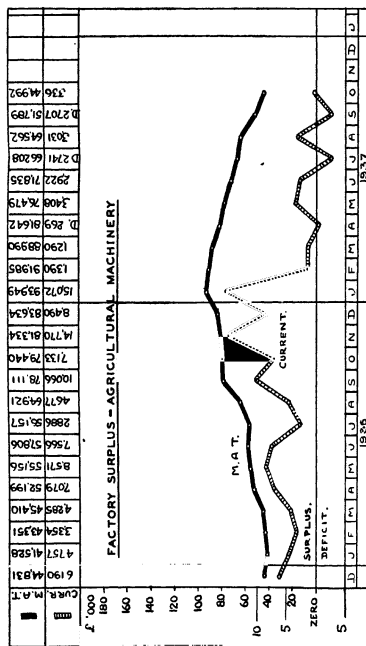


Fig. 51



As to comments on the financial position, the control assistant would probably be well advised to take the advice of the chief accountant or the secretary of the company, until such time as he is himself competent to analyse the balance sheet items. The principal question to be answered is: "If there is a profit, where has it come from? If there is a loss, where has it gone to?" Arising from this will follow comments on the liquid position of the company, the relation between debtors and creditors, and the increase or decrease in the working capital, together with any other financial items which are important for the managing director to know.

In fact, the make-up of the financial position portion of Part II Report must depend largely upon circumstances, and the control assistant would probably be wise to work to the instructions of the managing director himself. The latter should be fully aware of the financial facts that are important to his peace of mind, and will direct the assistant with regard to what he wishes to watch.

With regard to the charts incorporated in the financial position report, in this case also the control assistant will take the managing director's instructions as to what he wishes recorded. Two examples have already been given, Fig. 34 showing ratios of control and Fig. 35 showing ratios of information. Probably one sheet would be sufficient for inclusion in the report, the other being kept up for reference purposes only when required.

It may also be considered advisable to include a working capital chart, such as is illustrated in Fig. 36 in the chapter on the "Financial Position."

It is not unusual for the managing director to issue for circulation to the board a single abbreviated report, containing a summary of the primary figures, a précis of the departmental managers' reports, and perhaps a chart

or two covering the more important items of control. Where the board is composed of working directors, this is not customary, but where the managing director is the only full-time member of the board, his colleagues frequently do not desire to see so much of the detail, provided they are presented with the key facts and figures. In such cases, the control assistant will make up the two reports for the managing director's private use, and the latter will then indicate which items should be included in the final report and summary circulated to the other members of the board.

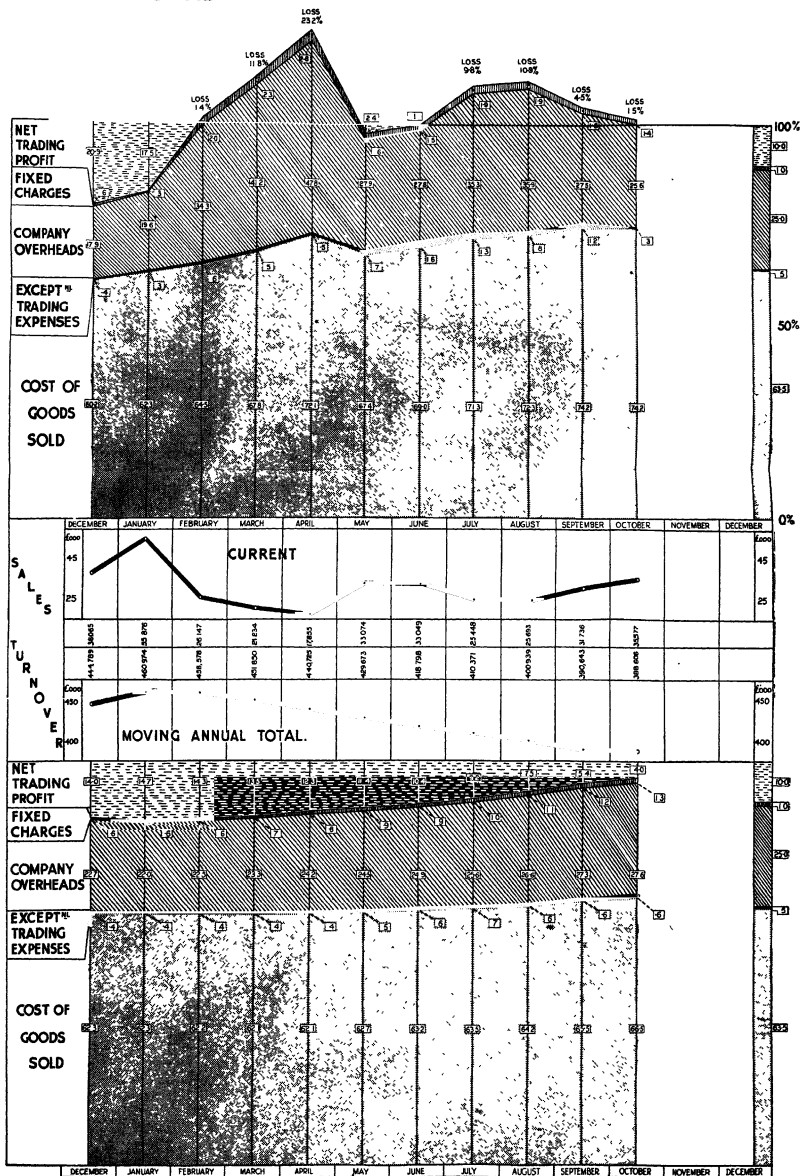
In making out the board returns it is important that the figures should be correct in the first instance, as alterations and changes entail a considerable amount of work. Under the usual old-fashioned system where trading and profit and loss accounts are shown with cumulative figures month by month, errors and omissions are merely adjusted in the current month, and the chances are exceedingly small that the error will ever be noticed. This is no doubt an advantage from the accountant's point of view, but cannot be considered sound from the management standpoint. The writer would be the last to minimize the difficulties of problems that arise in industrial accountancy, and it is undoubtedly true that there are occasions when it is exceedingly hard to make a definite decision regarding the allocation of a charge. The month has closed; the control figures are urgently required, and some decision must be made; the accountant places it to a certain account in all good faith, and a month later it may be found that that particular charge would have been better placed to a different account altogether. Sometimes to make the proper change would cause a considerable amount of alteration in the statistics and charts, and it is, therefore, of the greatest importance that when the





# SALES POUND

## CURRENT MONTHLY RESULTS



MOVING ANNUAL TOTAL RESULTS

FIG. 52



control is first being installed the accountant or the control assistant should be quite clear as to the principles that are involved in the allocation of expenditure. If, however, despite this precaution, an error should creep in, the accountant should notify the control assistant with the least possible delay to enable him to make the necessary adjustment to his statistics and charts before he begins to work on the figures for the month under review.

Again, every company makes adjustments of one kind or another when completing the annual financial period. The final figures for the last month in the financial year (and these should also include the final figures for the whole financial year) are often altered and adjusted in a perfectly legitimate and correct manner. There is usually delay in the figures for the final month of the year, and, owing to the adjustments made, the actual figures for the final month are not likely to be of any value for comparison with the previous months.

For instance, the value of stocks held may be found to have suddenly decreased; this will probably be due to a writing-off of obsolete stocks rather than true reduction of stock held. An overhead item, perhaps, will be found to drop unexpectedly below its previous level owing to a suspense account having been kept too high, an adjustment for this being made in the last month.

As long as this difficulty with the closing month is borne in mind, no great harm is done as far as the control goes. It is, of course, essential for the final figures to be got out as quickly as possible in order that the control reports for the early months of the new year may not be delayed. Until the final figures for the closing month are got out, the moving annual totals for the following months cannot proceed except in a temporary fashion. Here again the advantage of working by the trend method can be seen,

as the adjustments made each year in the accounts are often to some extent similar, and therefore in the moving annual total such adjustments may in some degree cancel out without disturbing the general impression of the trend.

It is essential that an element of flexibility should be kept in the board returns. The importance of starting right has already been emphasized, but the greatest care and foresight cannot always allow for unusual happenings. When all is said and done, however, the idea at the back of higher control is to provide a true picture from which the managing director can gain assistance—not to set up a complex statistical framework into which must be forced all the results that arise. As in everything else connected with industrial management, practical common sense must be the guide. At the same time, careless allocation, made without any regard to control principles, should be the subject of an immediate protest and correction before it has time to complicate future results. For this reason it is most important that there should be complete liaison between the accountant and the control assistant, and the latter should have the right to raise any doubtful point with the former, with the certainty that his queries will be amicably answered in such a manner as will enable him to carry out his responsibilities to the managing director for an intelligent summary of the position.

## CHAPTER XII

### THE USES OF HIGHER CONTROL.

It will be found by those who install and use this method of higher control that there is almost no limit to the facts that can be ascertained, and the influence that can be brought to bear through it upon the conduct of the business. The managing director receives his Part I Report within a day or two after the conclusion of the month under review. He notes from the primary figures that his trend of orders received has fallen, let us say, for the third month in succession, and that his orders outstanding are getting dangerously low. The secondary figures tell him which section of his turnover is responsible for this continued fall.

He can immediately assemble round him the departmental chiefs, and discuss what steps can be taken to stop the falling trends. He can obtain the opinions of those who are closest in touch with affairs as to whether this falling off is due to prices that are too high, or competitors' activities, or unsatisfactory goods, or perhaps to discounts which are unattractive to the retailer. He can then decide what action it is best to take and can start the new month with a fresh grip on the situation. The urgency of the position will be shown by the state of the order book, and in the case of a works he can confer with the works manager as to whether it would be wise to manufacture to stock, or whether the works activity should be reduced.

His daily return of orders received will show him how his policy is working out, and every day throughout the month he will know precisely how things are going.

Towards the middle of the month his trading and financial reports will be issued, and from this the primary

figures will tell him immediately whether he has made a profit or a loss over the last month, and whether the trend of that profit or loss is rising or falling, compared with the result at the end of the last financial year. The secondary figures will tell him which departments are profitable and which are unprofitable, and again he will be able to call in those who are best able to advise him, and confer as to how matters can be improved. There may be difficulties to face—it is even possible that the existing position is susceptible to very little alteration. But he will at any rate know exactly how he stands, and when a change can profitably be made he can make it immediately.

The analysis of his balance sheet makes clear to him the financial position of his concern. If it be necessary for him to negotiate with his bank for an increase in overdraft for development purposes, he is able to set before his bank manager a clear and complete statement of the fluctuations of his business since the control began, and where it is a case of a small business struggling to take advantage of good trade prospects, he is much more likely to receive a sympathetic hearing than if he merely approached the bank manager with verbal statements and his latest figures. The control trends show so clearly how his orders received are steadily rising, and how his financial position is improving month by month, that it is bound to induce confidence in those from whom he wishes to obtain help.

So much is merely the ordinary working of the control. The trend method, however, enables him month by month to set quotas for his sales manager, his works manager, and his other responsible officials, and it is, after all, only human nature that a man will work much more enthusiastically when he is given a quota to beat than when he is merely urged on to do the best he can.

The mere fact of knowing that the managing director has a perfectly clear vision of what is going on, and a perfectly clear idea of what he wants, has the natural result of bringing in response from the staff a definite effort aimed at getting that result. Nowhere better than in industry is the saying of Paul the Apótle true: "For if the trumpet give an uncertain sound, who shall prepare himself to the battle?" Uncertain and hesitating leadership in industry is the surest way to failure, and with the use of higher control there is no longer any need for uncertainty as far as the objective is concerned.

Policy problems are a different matter. In matters of policy there is no guide other than experience, foresight, and prudence, and no statistical system can possibly make up for the lack of these. But there is no longer any reason why the problems of policy should be aggravated by the uncertainty of the actual position, and it is not too much to say that a sure knowledge of the actual position can be of the greatest help in assisting policy decisions, however difficult and complex they may be.

But this higher control work has perhaps a peculiar appeal to the small business, where success or failure is so often dependent upon the activities of one man. He may be the owner, the managing director, or the local general manager, but whatever his title may be, he combines in himself the functions of the managing director, the sales manager, and sometimes the works manager as well. He may have a board to whom he can refer, but his colleagues will probably only be giving a few hours a month to his problems, and almost the entire burden falls upon his shoulders. He cannot afford a highly-paid staff to assist him, his margin of working capital may be small, and to keep his business afloat means concentrated and



continuous activity on his part. It is to the man of this type, upon whose energies British industry has been built up in the past centuries, and who still represents far the largest proportion of industrial effort in this country, that this system of higher control should especially appeal. It is simple in application; it requires no additional staff to work it, needing as it does only a few hours' work each month in making up the charts and trends. *There is no need for it to be installed in full, as has been outlined in this book;* the primary trends alone, and one or two financial figures, are enough to keep a grip on the main position of affairs. Even with so small an application as the preparation of the primary figures only, the single-handed controller of a business can be sure that he knows how he stands, and can escape at any rate from the constant feeling of worry as to what is really happening to his business.

To trustees for debenture holders, to overdraft managers of banks, and to all that important section that has responsibility without direct authority in the carrying on of industrial undertakings, the author ventures to submit that this form of higher control presents a method of ascertaining the position far in advance of anything that has as yet been put forward. For such responsible individuals merely to receive monthly accountancy statements entails a considerable amount of work before the true position can be ascertained. To know that a concern has made a profit or loss for the month is not so important as to know the reason for that profit or loss, and how it compares with previous results. The receipt of the board statements and the two reports each month enables a trustee or bank representative to see immediately, and without any fear of omission, exactly what is happening.

Moreover, the ordinary profit and loss account and

balance sheet are of very little value for estimating the industrial strength of an undertaking. They may show a thoroughly bad state of affairs and yet the concern itself may be on the verge of success. It appears to be frequently overlooked by those who represent financial interests that the accountancy statements of firms that are in difficulties represent past history and not present activities or future prospects. To judge the industrial strength of a concern on results that are past and done with is to take for granted that betterment is impossible, that development cannot be successful, and that conditions will never change.

No form of statement can ever show on paper the human side of management; but under higher control methods the trends of sales or orders received, perhaps the trend of development expenses or it may be even the trend of guarantee service work, all go to complete the picture of how that management is being carried on.

The financial statements may show the results of the past; but the business position control figures and charts show the prospects for the future, and it is not too much to say that it would be more right and proper for a financial interest to look askance at a company with sound accountancy statements and falling business trends than at a concern in which the financial statements were on the face of them unsound but the business trends improving rapidly.

For those who are thinking of taking a financial interest in a business no better security could be obtained than a series of trends of the primary figures of the concern, and a series of financial ratios from past results. The whole history of the business is so clearly shown by this simple means that it would be impossible for an unduly favourable position to be shown, and the prospective investor would be able to obtain a sound opinion as to the conduct of the

business in the past and the reason why the trends have moved in the direction shown. This higher control method presents a picture of the true worth of an undertaking in all its aspects, and it is impossible under this method—as it is so easy when tabulated statements of figures are provided—to throw undue emphasis on any one phase of activity.

Alternatively, those who desire to bring in other financial interests are much more likely to do so by a presentation of their results in this method than in any other way.

Again, when mergers are in contemplation, or the rationalization of a number of independent concerns is being discussed, preparing the accountancy results on this higher control system enables a direct comparison to be made on an identical basis for all the individual undertakings concerned. Their business, trading and financial trends can be compared, and in this manner a very much more straightforward basis for merging can be arrived at than merely by taking asset values and profits previously earned. The control statement of accounts lends itself to a fair and equitable arrangement of the trading results, and charges existing in one firm and not in another can be kept clearly apart from the working results in a manner which cannot be attained by the usual accountancy forms.

Attempts have sometimes been made in the past to establish the relative efficiency of a given undertaking. Certain industries are subject to control by quota, and such quotas are usually fixed upon a basis of past turnovers. This is done because a turnover is a figure that can be definitely ascertained, whereas almost all the remaining figures in the accountancy statements are subject to adjustments of one kind or another.

If an industry is to go forward in the future the encouragement and backing that are given to that industry must depend upon its efficiency and not merely upon its past turnover. It is common to hear talk of methods that set a premium upon inefficiency, and surely no better way exists of doing this than to fix quotas and limit output on a system which takes no account whatever of the efficiency of the various concerns.

The problem of assessing industrial efficiency is usually considered to be insoluble, but the author would venture to suggest that higher control, with its standardized method of setting out the facts and figures from a management standpoint, provides at any rate a practical basis from which it should be possible to approach the assessment of the relative efficiency of a number of undertakings having a common product. The method adopted in higher control of splitting expenditure adapts itself admirably to multiplying factors by which the necessary allowances for given conditions can be made, and in this manner it should be possible to arrive at an industrial efficiency index of a practical nature.

Within the last few years there has emerged amongst the general public a more critical attitude towards industrial management, and a tendency to look at industry more as a means of social service than as a source of private profit. There is a move towards the strengthening of the trade associations, so that some form of effective direction of industrial activity can be achieved. This is bound to bring with it an inquiry as to forms of safeguard that can be created, so that an industry formed into a unit directed by its trade association can be maintained on a satisfactory level of efficiency which will ensure that individual concerns do not stagnate under the protection of a closed corporation.

Surely the answer to this problem lies in the adoption

of the higher control method for the presentation of the results of every concern in the trade association. This would permit of the direct comparison of each cost of manufacture, factory surplus, gross, net, and final profit, and so show clearly which concerns were being well managed, and which were not. Standards of performance would be quite simply set, as long as all expenditure was allocated on the lines set out in this book, and inefficient management in this manner brought to light.

Finally—and this is in some respects almost the most valuable side of the work—higher control lends itself admirably to the training of the student in management problems. Much has been done in recent years towards simplifying the teaching of management in order that the younger generation who are coming forward to take their place in industry may start with a proper knowledge of how they should go about their work as their responsibilities increase. Hitherto this teaching has been—so far as the student lacking industrial experience is concerned—largely restricted to certain fundamentals. But higher control, being built upon the results achieved by industrial activity, states a clear case showing the lines upon which those results have come about. It is concrete, and therefore can be taught; it is not a network of nebulous theories.

The teaching at present given to students in mathematics, economics, or in the wide range of technical subjects of every description, requires a far greater degree of intellectual development than the science of higher control would do. For those who intend to make a career in industry, therefore, there seems no logical reason why training should not be given in higher control work. A great many of the earlier details involved are matters of common sense known to all students in a disconnected

fashion. The amount of actual accountancy involved in grasping higher control principles is small, and does not go beyond the bare elements of the standard accountancy statements. It is not necessary for the student to know how books of account are kept—all he needs is a clear idea of what belongs to each class of expenditure and income and where they should be placed in the statement of account, if the manager is to see clearly how matters are going. Simple balance sheets are easily understood even by the inexperienced, and the consciousness of contact with the realities of industrial life adds a zest to the student's work that helps him to understand higher control principles where he would stumble amongst the theories of other subjects.

In short, a student with some training in higher control would have a far better chance of making early headway in an industrial career than one who starts with no appreciation of industrial problems and only picks up what he can from the activity around him.

Fifty years ago production, as opposed to manufacture, came into being and has been the subject of concentrated thought and energetic development ever since, until to-day it has been brought to a fine art. Twenty-five or thirty years ago the selling and distribution side of industry came into the limelight, as it was realized that effort was needed to create markets that would absorb the goods which more intensive methods of production had brought into being. Now the problem of management as a whole is coming to the front in its turn, since production and distribution, however well organized and developed, come to nothing if the industrial undertakings responsible for them are not properly managed.

**Management is no longer the vague term that it was a**

generation ago. The duties and responsibilities of a manager—whether chairman, managing director, general manager, departmental manager, or foreman—are now clearly defined and recognized. The lines upon which his work should run if successful results are to be obtained are so clear that the sources of failure are not far to seek when trouble arises.

To the senior executive head of a business the problem of greatest importance is that of adequate control. The days are passing when failure is accepted as merely a question of bad luck, and those whose money or interests are involved in a given concern are gradually becoming more insistent that that concern should be properly managed. A simple and effective method of supervision, therefore, is perhaps one of the most urgent needs of industry to-day, and it is hoped that this system of higher control may perhaps offer to those responsible for the success of industrial undertakings a solution to their control problem which is sound both in theory and practice.

## APPENDIX A

### CHARTS: THEIR MAKING AND THEIR USE

BUSINESS men are sometimes inclined to fight shy of charts, usually because their experience has been unfortunate in the charts that have been submitted to them. Antipathy to graphical methods of recording facts is almost always based on sound enough grounds, for unless a few simple principles are followed in graphical work, the result is often a chart which conveys as little meaning when looked at the right way up as it would if studied upside down.

More often than not, the charts ordinarily met with in business merely illustrate the current results. In so far as they present a picture of the current results which is more striking in appearance than a column of figures, they fulfil the duty of a chart. But a chart representing only fluctuating current results weekly or monthly is in itself of very little value to the managing director, and it is probably largely owing to this fact that many business men are of the opinion that charts are not of much practical use.

A large proportion of the charts that are met with in business to-day are made "blind," that is to say, the figures from which the charts are made up are not shown upon the chart itself. To a man who spends a good deal of time studying figures it is more irritating than helpful to be presented with a sheet of squared paper, covered with zig-zag lines, and to be told that this chart will help him in his survey of the position. It is not to be wondered at that he is unable to make head or tail of it, and throws



it on one side, returning to the figures which at any rate give him something definite to study.

The plotting of current results is seldom of any real constructive use, except when an attempt is being made to find the seasonal fluctuations of a business. When this is wanted, a series of current monthly results plotted "on top" of each other will usually show fairly clearly where the maximum and minimum results arise in the course of the year. But apart from this use—which is in itself valuable for certain control purposes—the recording of current monthly results as a chart, unaccompanied by any other results, is more confusing than helpful.

A chart is a graphical picture of what is going on, and translates the bare figures into a rising or falling curve. The comparison of curves is a very much simpler matter than the comparison of columns of figures, and, since management is built upon comparison, it is by comparing chart results that management can be best served. This brings us to the principal reason why the average business man has little use for charts—that is, that when current results are plotted with nothing against which they can be compared, the charts become ineffective as a help to the manager.

Every control chart, therefore, should always show comparative results; a trend, representing a difference, is in itself a comparison, since the rising or falling trend is, with its single line, a continual comparison of the twelve-monthly result recorded against the result at the end of the last financial year. Ratios should be compared against a normal line, and there are occasions when a current or cumulative set of figures may with advantage be plotted against the current or cumulative figures for the previous year. Whatever the chart may be, however, it should never be presented to the managing director

without there being some method by which he can compare the recorded result with some standard of performance, either actual or desired.

The omission of the actual figures from the chart is not the only instance of bad charting practice frequently to be met with in ordinary business charts. "Blind" charts are bad enough, but in addition it is common to meet charts which are not only "blind," but which have a large number of lines upon the same field. These are either shown in different colours, or in different forms of dots and dashes. The result is confusion to the mind, and more hindrance than help to the reader.

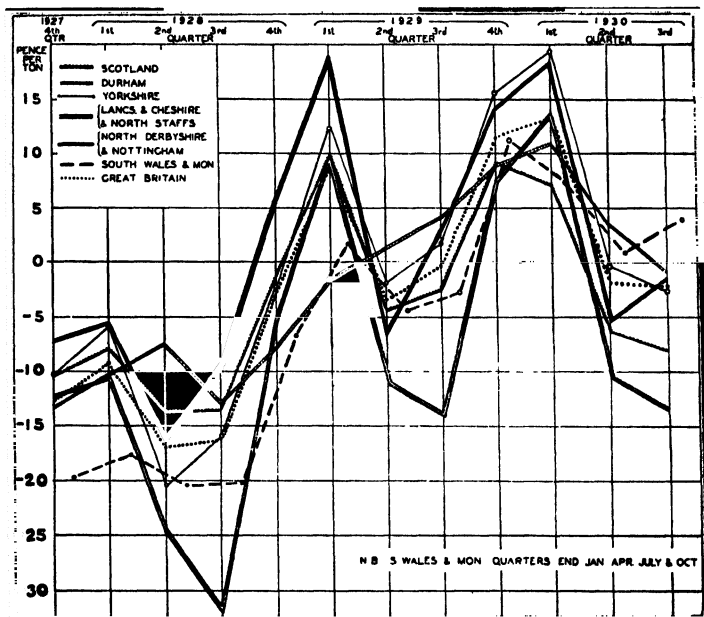
Fig. 53 is a good example of one of these charts. It is made up to show the profit or loss in pence per ton in seven different coalfields over three years. It is "blind," and therefore to obtain the figure for any period reference must be made to the scale on the left. Coal being an industry directly affected by seasonal fluctuations, a study of this chart leaves the reader, at the end of five minutes' consideration, very much where he was before; in fact, he would probably have been a good deal more informed had he been presented with a table of figures.

From the sub-title, "How the districts are faring," it is clear that the intention is to show how matters are going on in the different coalfields; that is to say, whether the business in the different coalfields is getting better or worse. It is clearly impossible to do this effectively by means of current quarterly results. Few readers will be bold enough to say, after glancing at this chart, whether Durham is doing better or worse than South Wales and Monmouth.

If, however, trend curves are made, with moving annual averages worked quarterly instead of monthly, we obtain Fig. 54, and from this chart it is really possible to

see how the districts are faring. The zero line is the common basis of comparison, and a glance at the small composite chart enables the reader to see immediately which district is faring best.

### PROFIT AND LOSS IN THE COALFIELDS



HOW THE DISTRICTS ARE FARING  
Results per ton commercially saleable

FIG. 53

It is a great mistake to try to put too much into one chart. Two, or in certain circumstances three, lines are the utmost that should be permitted on the same chart field, as otherwise it is most difficult to obtain a rapid impression of what the chart is intended to show. The practice of invariably inserting the figures on the chart is in some degree a safeguard in this matter, as the more lines that

# PROFIT & LOSS IN THE COALFIELDS

MOVING ANNUAL AVERAGE

IN PENCE PER TON

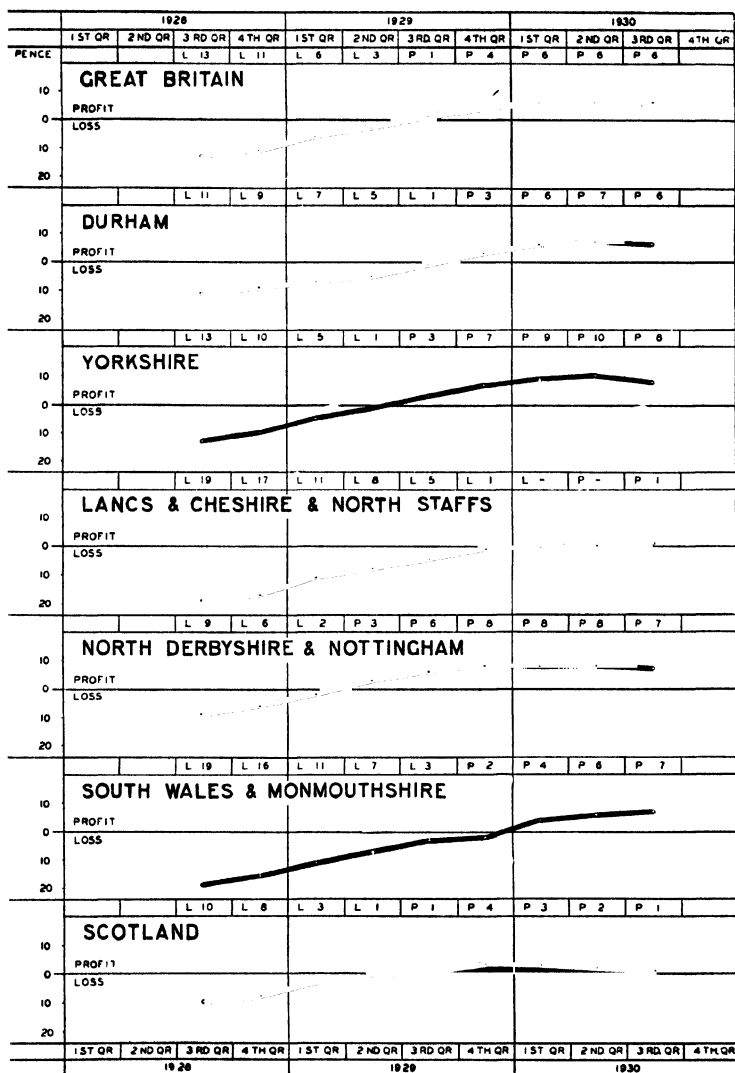


FIG. 54

are put on the chart the more sets of figures have to be inserted, and the more encroachment, therefore, on the chart field by the figures.

The line joining the points on a chart should be bold and broad. The old practice of drawing very fine lines is no doubt derived from the original mathematical use of graphics for solving equations, when it was necessary to obtain the exact point at which two lines met. In control work, however, as the actual figures are always on the charts, the thickness of the line may be equal to £1,000 or so on the scale, without any harm being done. The only purpose of the line in a control chart is to show whether the figures are increasing or decreasing, and as long as this result is obtained the mathematical accuracy of the point is of secondary importance.

If ten or twenty charts are needed for comparative purposes, it will often be found a good plan either to prepare the whole series on one large sheet, divided into ten or twenty sections, or alternatively standard quarto charting paper can be used and the charts then be arranged together and photostated. In this manner, the irritation and loss of concentration caused by having to turn over a number of sheets are avoided, and the eye can range from chart to chart over the whole sheet without losing contact. Small 6"  $\times$  4" chart cards can also be used with advantage.

Every chart should possess a clear explanatory title so that the reader can immediately grasp what it is all about.

A word may perhaps be said on materials. Standard chart papers can now be obtained without difficulty, covering a considerable number of different types of grid. These can be had in foolscap, quarto, or octavo, and the

use of drawing office rolls of squared paper should be avoided unless some specially large chart has to be made. For wall charts, a good quality of stout paper can be obtained in sheets 27 in. by 40 in., and if this be halved, the resulting pieces 27 in. by 20 in. make a very good size for large wall charting purposes.

Where control charts undergo a good deal of handling, stout bond paper should be obtained, and it will be found that blue prints can be taken without much difficulty from this. The photostating process probably gives the clearest and most satisfactory results, and has a further advantage in that a large number of quarto charts can be set up together and reduced in size, and yet remain quite legible. It is possible to reduce a normal quarto chart to  $4\frac{1}{2}$  in. by 3 in., and for the written-in figures of the original chart to remain perfectly legible to the naked eye.

The use of coloured inks should be avoided, as crayons will be found quite satisfactory when coloured bars or lines are required. Indian ink, however, should be used instead of black crayon, as the latter is apt to smudge.

There are on the market at the present time a considerable number of excellent books devoted to graphics for business purposes, and those who are anxious to install control methods would be well advised to study one of these works, in order to make sure that the charts used in the control are made up on correct lines.

It should always be borne clearly in mind that the purpose of a chart is to give an immediate impression to the eye of what is happening to the item under review, as compared with what ought to be happening. Once the trend method of considering results has been adopted, it will be found that a wide range of comparison of the fluctuations of the different items is immediately available. The old

method of charting current results merely recorded the ups and downs month by month, and as in business a month is only a short period, incomplete in itself, and subject to influences from the months before, comparisons that are based upon monthly fluctuations only are practically useless. With the trend method of using the twelve-monthly total, however, the fluctuations are smoothed out, and it is then easy to see how one item is rising while another is falling. By plotting these trends on semi-logarithmic paper it is possible to watch whether the two items are rising or falling at the same rate, and the fact that one is rising at a faster rate than the other can often have considerable influence upon the welfare of the concern. To be able to watch this fact, therefore, and take steps to prevent it continuing, can be of great value to those in control.

The utmost caution should be exercised in building up a system of charts outside the normal charts required for the control. It is very easy to overdo the making of charts, and it is better to reduce the number to the absolute minimum required to keep control of what is going on, and avoid making any more unless they are definitely called for on account of some special condition of affairs over which it is desired to keep a watch. In this way the business man will find that the survey of his charts, and the watching of their movements, is a weekly or monthly event to which he looks forward with pleasure, instead of being a laborious struggle to grasp this vague advantage of using graphics about which he has heard, and which he—with every good reason for it—cannot for the life of him understand.

## APPENDIX B

### STOCK VALUATION IN RETAIL DISTRIBUTION

IN Retail Distribution it is necessary to record stock in such a way that the stock figure actually represents the true value of this asset to the firm at any particular date, without which no reliable figure of profit or loss for any period can be ascertained.

The buyer when placing his orders has at the back of his mind the selling value of the goods which he is purchasing, and for estimating the potential value of stock to a concern the selling price value is the natural medium. But it will be appreciated that such values are subject to fluctuations in trade prices which it may be entirely outside the power of the particular firm to influence; or, on the other hand, the selling prices may have been fixed in all good faith, but changes in fashion may render an article almost worthless after it has been in stock for some considerable period. These changes in value render the selling price method of recording stock of doubtful value in estimating the actual profit earned during a given time, and to overcome this difficulty a system has been devised which embodies all the best points of both selling price and cost or market price valuation. This is known as the retail method of stock recording, and it might be as well to outline briefly the principles involved.

As the invoices for purchases for a department are received from the supplier the departmental buyer marks on each the selling price which it is anticipated will be received for the articles concerned. This selling price is also recorded on the tickets affixed to the goods before they are issued to their respective departments, and great care must be taken to see that the two sets of figures



agree. At the end of the trading period under review, whether it be a week, a month, or a longer period, the total cost of the purchases (plus any carriage charges, etc.) is arrived at by the simple process of addition, and the corresponding selling prices are also totalled. The difference between these two figures represents the total mark-up on the goods, and this is expressed as a percentage on the selling price. For instance, the total cost of the purchases may amount to £5,000, and the estimated selling price of these goods to £7,500, i.e. a mark-up of £2,500 or  $33\frac{1}{3}$  per cent on the selling price of £7,500. This may be made up of varying mark-up figures on different articles, and in some cases it may be found desirable to divide a department into sections covering roughly articles with similar percentage mark-ups. But unless these percentages vary very widely, this is unnecessary, as the whole system is based on the averaging effect of the addition of the varying items.

Once the total selling price value of the purchases has been ascertained this figure can be used as the basis for calculating the stock value at the end of the period in the following manner. The total sales are deducted from the total purchases—both in selling price values—and the resultant figure represents the stock in hand, also in selling price value. To reduce this to the actual asset value of the stock the percentage mark-up which has already been established is brought into use, and the selling price value is reduced by this amount to ascertain the actual value of the stock. Continuing the example shown, it is supposed that of the £7,500 of purchases which have been put into stock during the period under review £5,000 have been sold, so that £2,500 of stock in selling price value remains in the place. This figure is then multiplied by  $66\frac{2}{3}$  per cent (or 100 minus  $33\frac{1}{3}$ ) to bring it back again to its actual value.

For the sake of clearness it has been supposed that the department discussed was a new one, and that there were consequently no stocks left over from the previous trading period. The statement of account for this section would then be as follows—

Net Sales . . . . .	£ 5,000
Opening Stocks at cost . . . . .	Nil
Purchases at cost . . . . .	£5,000
	<hr/>
	5,000
Less : Closing Stocks at cost . . . . .	1,666
	<hr/>
Cost of Goods Sold . . . . .	3,334
	<hr/>
GROSS MARGIN . . . . .	£1,666
	<hr/>

The importance of recording the stocks on hand at their actual value will be realized if the following table be compared with the foregoing one. In this case stocks are recorded at selling price values—

Net Sales . . . . .	£ 5,000
Opening Stocks at selling price . . . . .	Nil
Purchases at cost . . . . .	£5,000
	<hr/>
	5,000
Less : Closing Stocks at selling price . . . . .	2,500
	<hr/>
Cost of Goods Sold . . . . .	2,500
	<hr/>
GROSS MARGIN . . . . .	£2,500
	<hr/>

From this it becomes obvious that a transference of profit has taken place, as the gross margin of £2,500 includes the profit that it is estimated will accrue from the stocks on hand as well as the actual profit earned on the sales for the period.

To this point it has been assumed that the estimated mark-up was correct and that it was not found necessary to mark down any of the goods for some specified reason. Where this becomes necessary, care must be taken to see that accurate records are kept of any such mark-downs,

and in estimating the figure for closing stocks account must be taken of all such mark-downs.

The following table, which is based on one given by James L. Fri, in his book on *Retail Merchandising*, may prove of interest as showing how the actual value of stocks may be reached when additional mark-ups and mark-downs are taken into consideration—

	Cost	Retail	Mark-up	Per Cent of Mark-up
Opening Stocks . . . . .	£ 4,000	£ 5,000	£ 1,000	20
Purchases . . . . .	8,000	12,000	4,000	33½
Freight Inwards . . . . .	400			
Additional Mark-up . . . . .		100		
Total Stocks <i>plus</i> Additions . .	12,400	17,100	4,700	27.49
Net Sales . . . . .		13,200		
Mark-downs . . . . .		200		
Total Retail Deduction . . . . .		13,400		
Stocks left on Hand— (£17,100 - £13,400) . . . . .		3,700		
Cost of Closing Stocks— (72.51% or 100 - 27.49 of Re- tail Stock value of £3,700)	2,683			

FIG 55

It will be seen that one of the great advantages of this method of recording stocks is that it avoids any arbitrary system of depreciation of stocks, in that such depreciation is included as a mark-down immediately the need for it arises. This ensures that goods which retain their full market value are left in the books at their real worth, while goods which lose their value for any reason are reduced immediately to their true worth, and the loss written off at once.

It should be noted that the word "cost" has been used in the table in rather a wide sense. It actually implies in the case of the opening and closing stocks a "derived

cost value" or actual value, but the single word has been employed for the sake of brevity.

It is not to be supposed that this system of stock valuation is not open to any objections, but in view of the importance of establishing a comparatively accurate figure of profit or loss on the working of a firm for any given period, it has been devised to ascertain the actual value of the stock without recourse having to be taken to a physical stock-taking which involves more work and expense than would be justified at frequent intervals. In commenting on the system, Mr. Fri says—

On the accuracy of the cumulative percentage mark-up hinges the accuracy of the entire retail plan. Inasmuch as the retail method is a system of averages, it assumes that the sales of a department in any period are uniformly representative of the merchandise regularly carried in that department and bear about the same average mark-up. Although this condition never actually exists, as a study of a department's figures will show, it is justified by the law of averages, and is sufficiently accurate to give derived cost value of merchandise on hand. The accuracy of the retail method of inventory depends upon a proper departmentalization and classification of merchandise with reference to varying mark-ups and turnover rates—the greater the merchandise classification the more accurate the results will be



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